Gas Journal

ANNUAL REVIEW NUMBER

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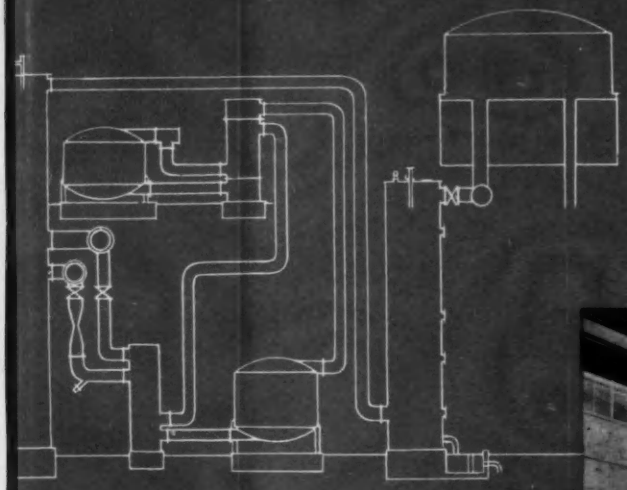
TECHNOLOGY DEPARTMENT



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CO conversion plant, total installed capacity 17,000,000 cu. ft/day.

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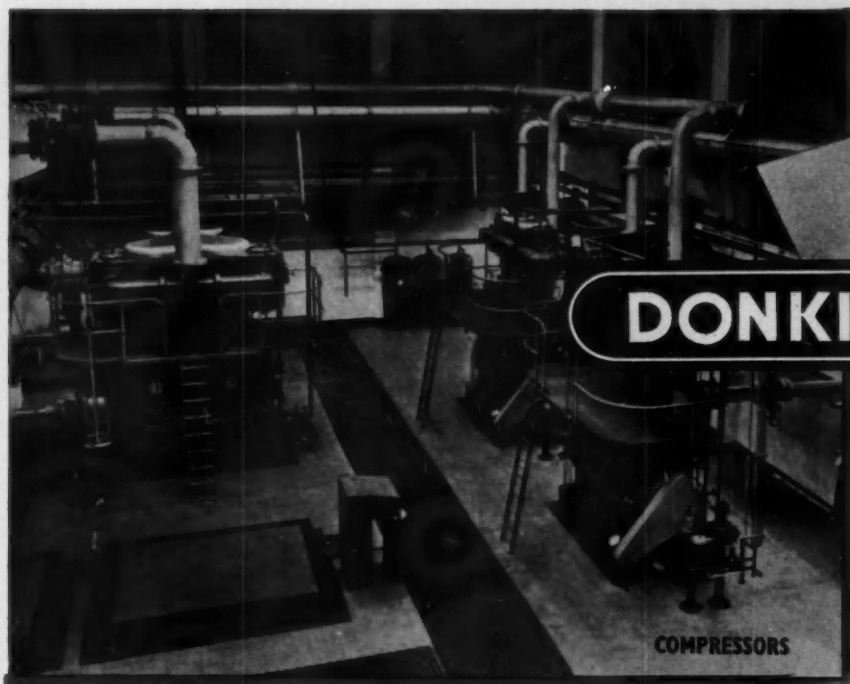

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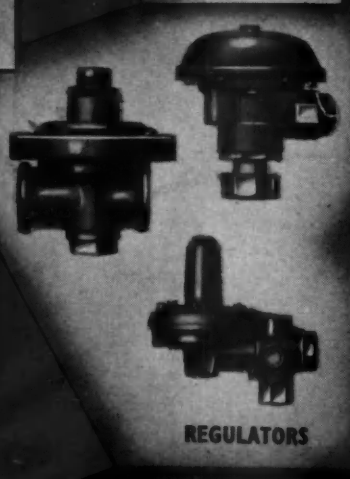

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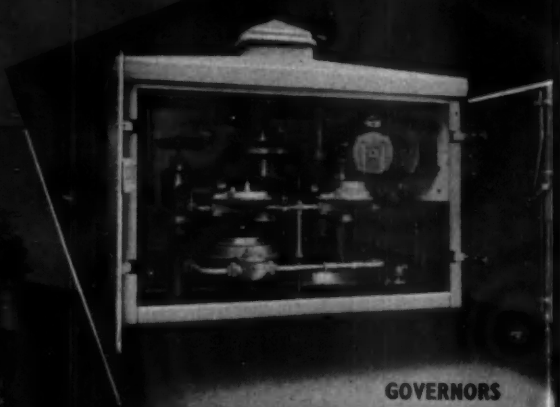

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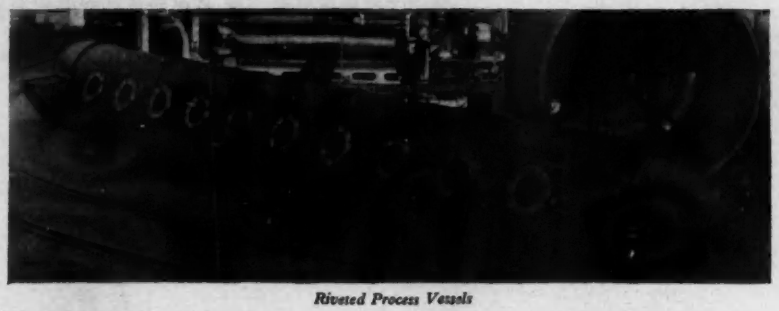
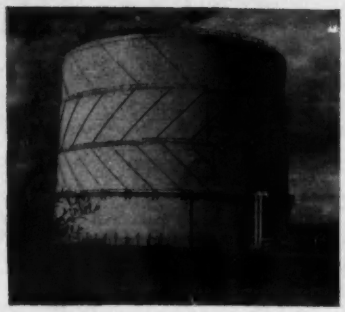


Riveted Process Vessels

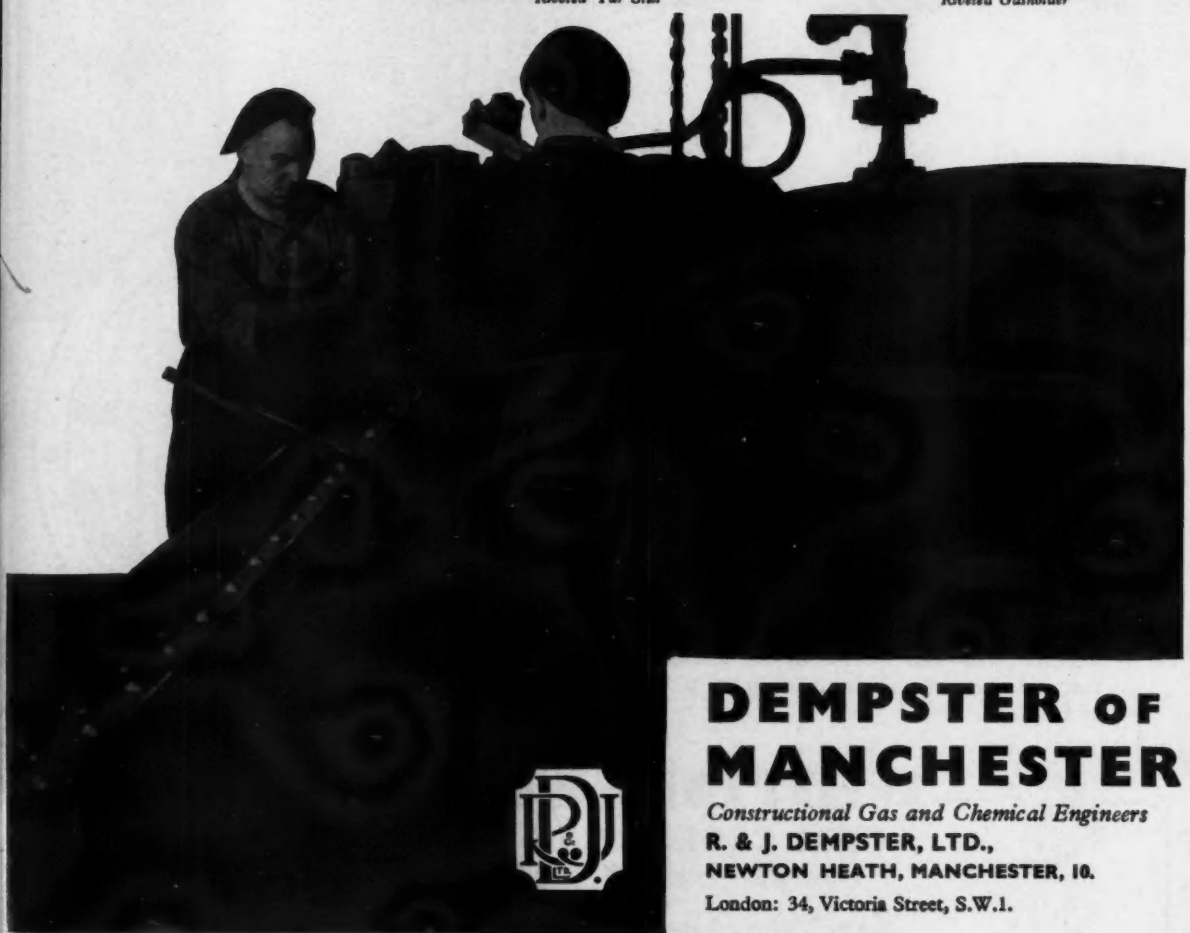
The 80 ton hydraulic riveting machine illustrated, is working on a gasholder column in the Plate Fabrication Shop. All classes of riveting are carried out at Dempsters to the most exacting specifications.

Makers of high quality by-product and chemical plant — condensers — detarrers — gas connections and valves—gasholders— iron castings — purifiers — stills — distillation columns and heat exchangers — tanks — washers—welded and riveted steelwork.

Riveted Tar Still



Riveted Gasholder



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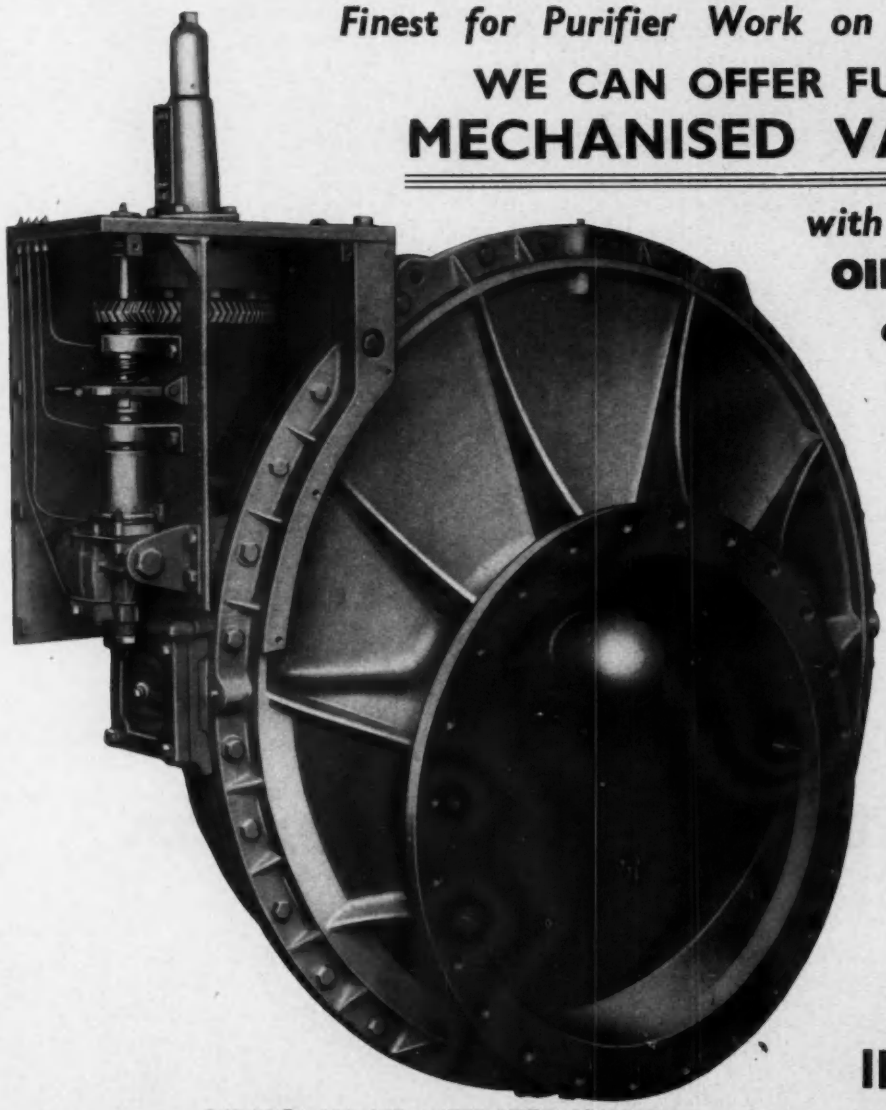

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The photograph on the left shows men working on the crown of a spi guided Gasholder which is being constructed in an existing brick

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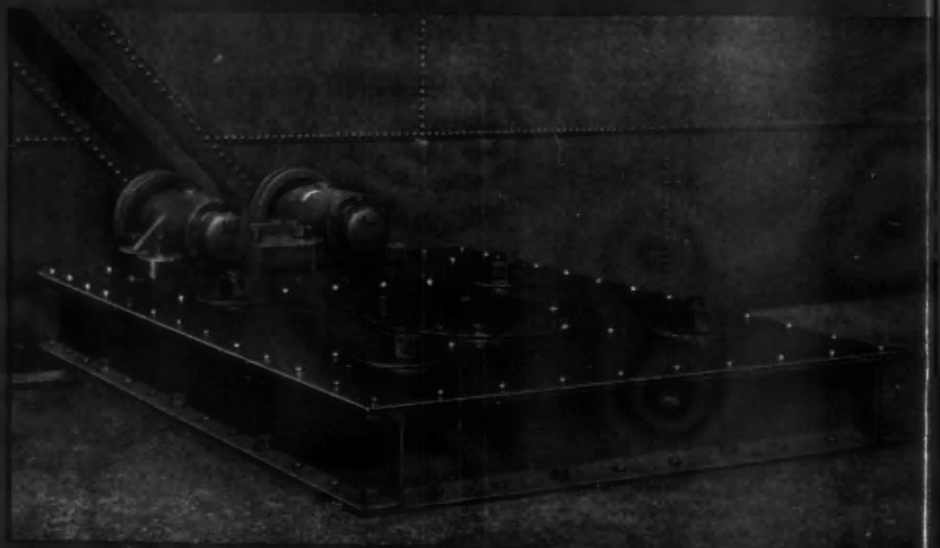
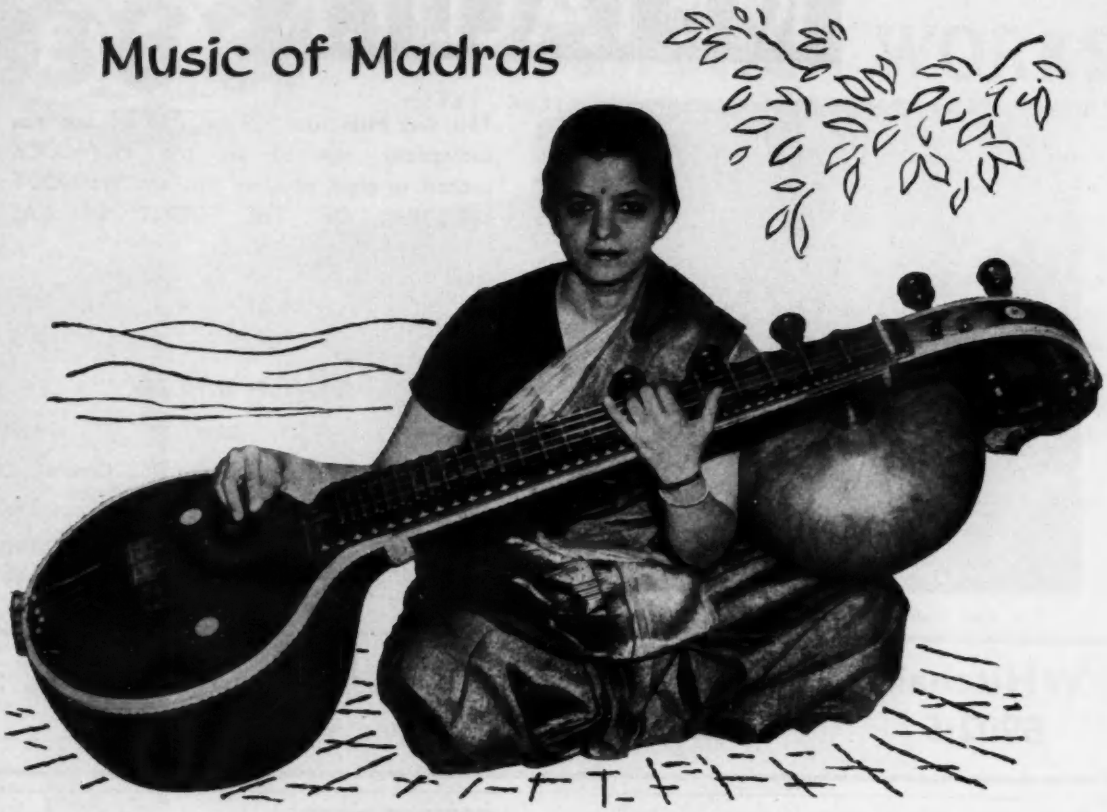


The photograph on the right shows the method of accommodating the tank carriages on the foundation blocks of the old standards

Music of Madras



Music plays a large part in the leisure and pleasure of the people of Madras, among whom Carnatic music—the South Indian classical style—is still a living tradition. The shapely *veena*, illustrated here, is in every sense an instrument of this tradition. During their working hours, many of the country people of Madras State breed sheep whose skins eventually find their way into the industry of the Western world—the best of them, hand-picked, providing the raw material of 'Multitest' meter diaphragms. The sheep raised in Madras are the so-called E.I. Persians; their skins have qualities not found elsewhere, making them a 'must' in meters which are to be as accurate and reliable as man can make them.
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Illustration by kind permission of R. J. Barritt, Esq., Div. Carbonisation Manager.

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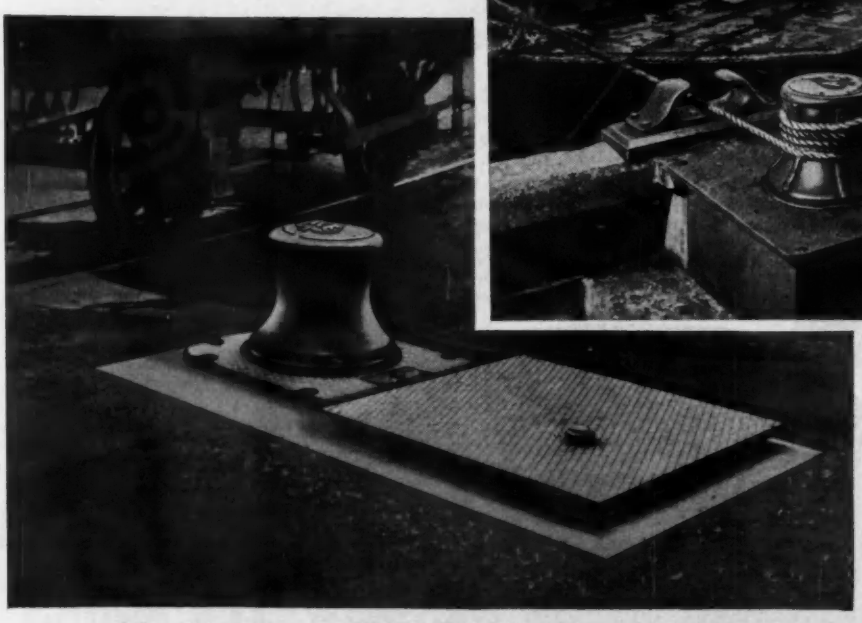
A typical ACE 3 ton vertical bollard winch as universally used in marshalling yards. Designed for heavy and continuous duty. ▼



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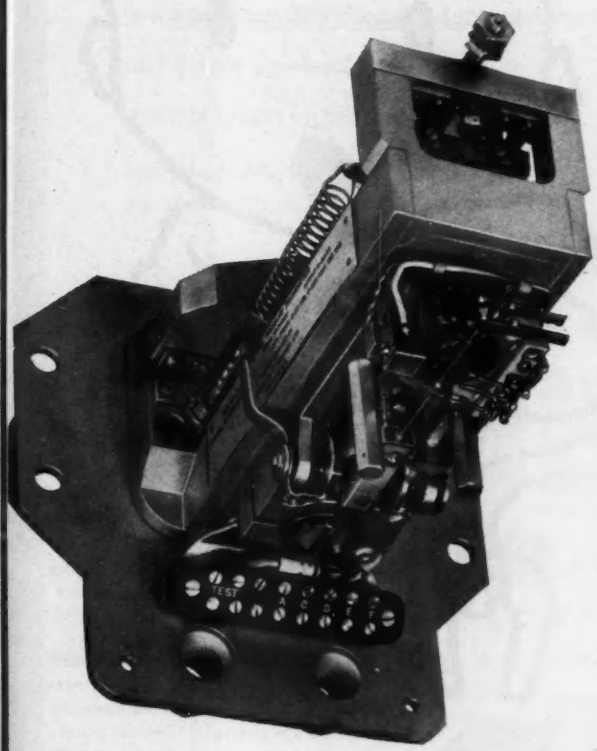

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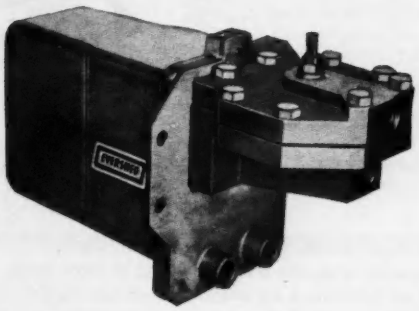

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"*Huh! I wouldn't like mine to do that!*"

"I know, but then you don't use yours to control water or gas and things."

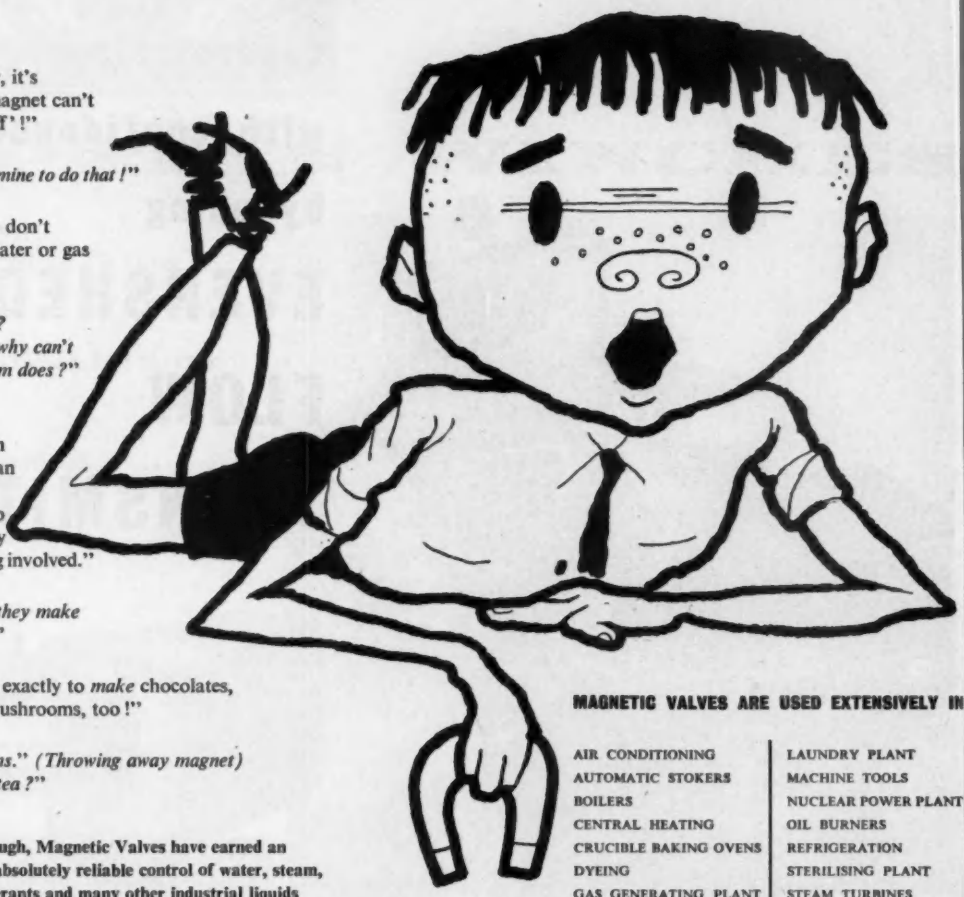
"*Control water or gas? Seems stupid to me — why can't they use a tap like Mum does?*"

"Ah! But using a tap means that you rely on what's called the 'human element'. That's why these valves are fitted to do things automatically —without people being involved."

"*Mr. Stevens told me they make chocolates with them!*"

"That's right, but not exactly to *make* chocolates, to *help* make them. Mushrooms, too!"

"*Cor! I like mushrooms.*" *(Throwing away magnet)*
"*Can I have some for tea?*"



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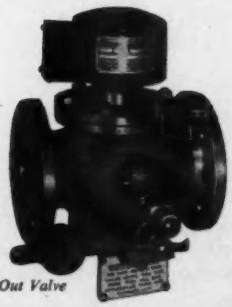
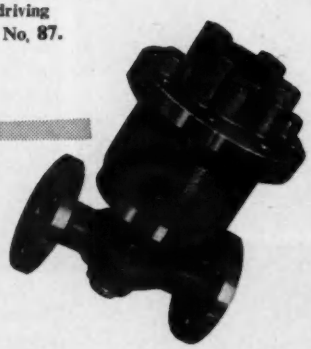


Magnetic Safety Cut-Out Valve



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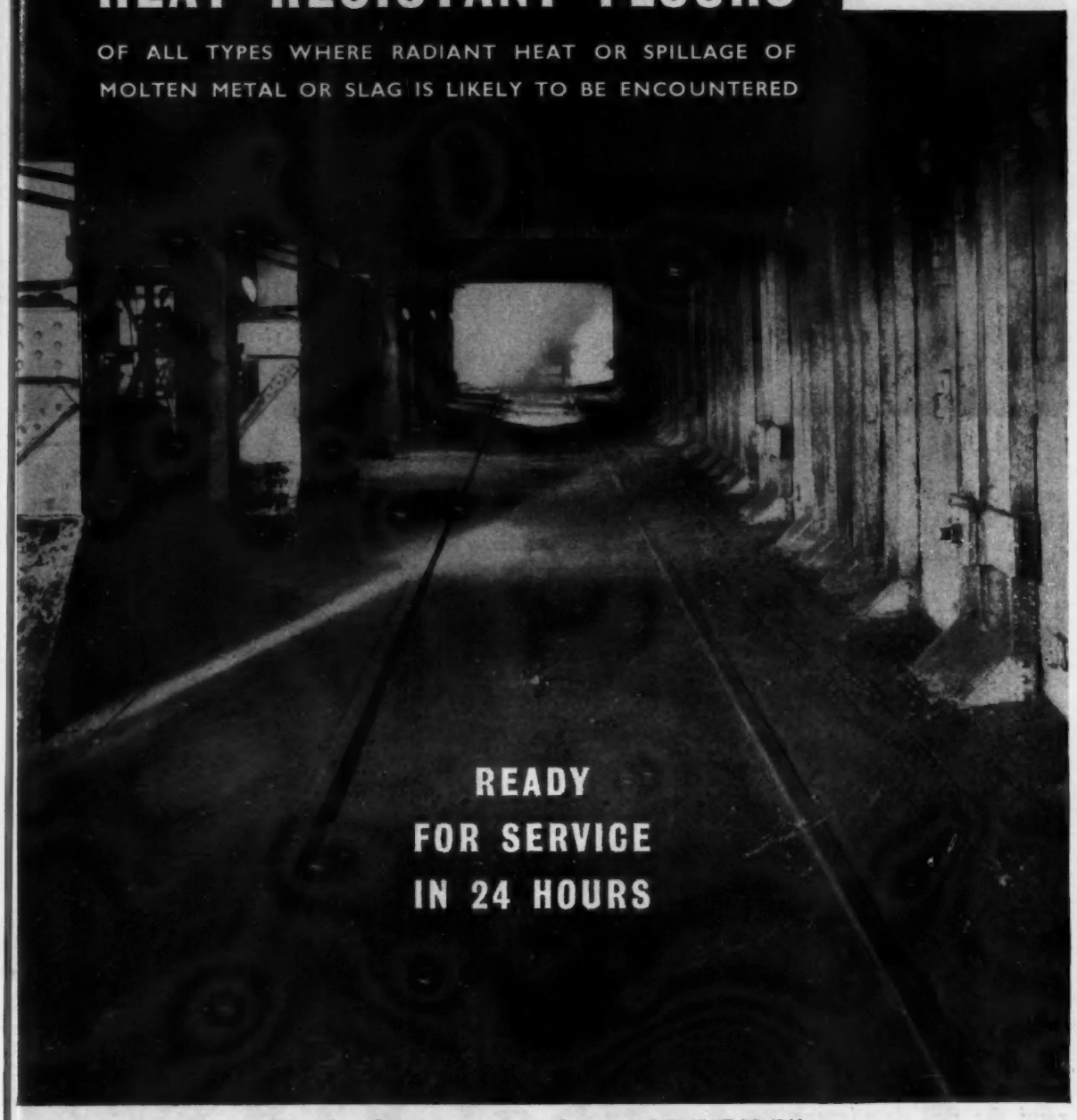

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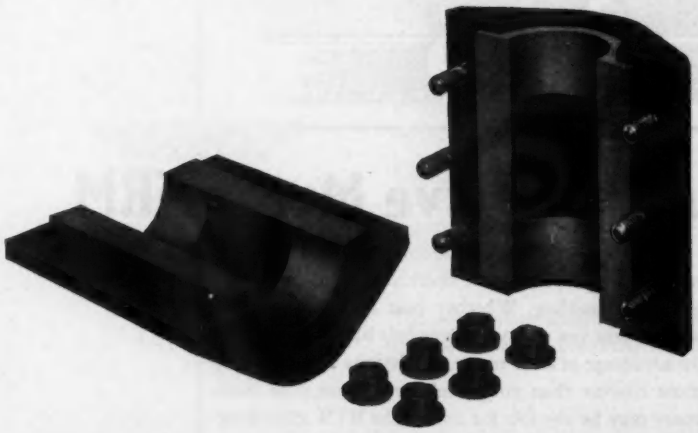

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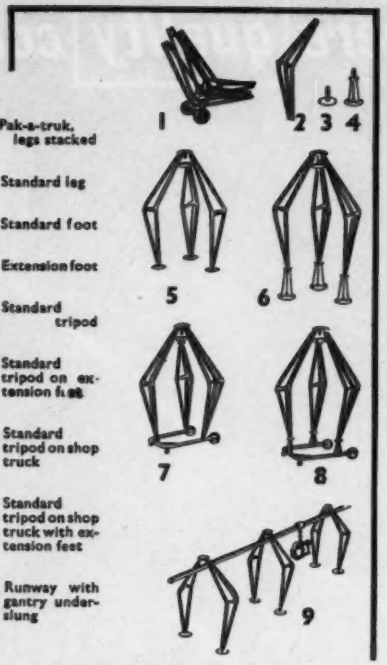

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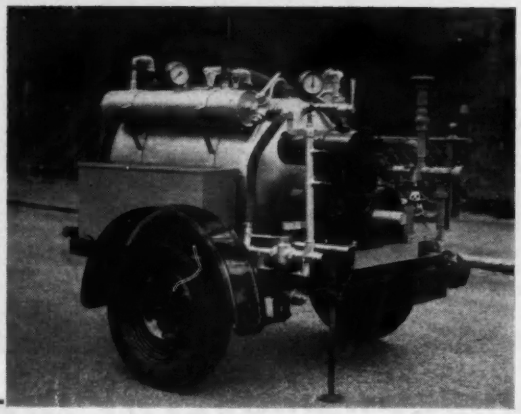
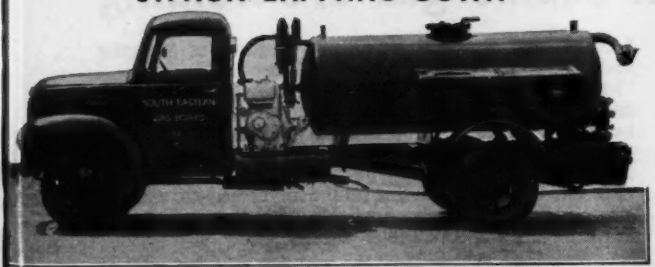


SYPHON EMPTYING OUTFIT



The Vacuum Syphon Emptying Outfit (*left*) is mounted on a 4 ton **Thames** Chassis. A 600 gallon galvanised tank is fitted. A rotary type exhauster is driven by a 4 b.h.p. four-stroke air cooled engine, mounted on a sub-frame behind the cab. The tank is fitted with a flame-proof vent and the outfit can be used for high or low pressure syphon emptying. A large manhole at the rear allows the tank to be cleaned easily. A sight glass is fitted to enable the operator to know when the Syphon is emptied. Twenty-five feet of 1½ in. suction hose is supplied with the outfit. The outfit can be used for vacuum or pressure working.

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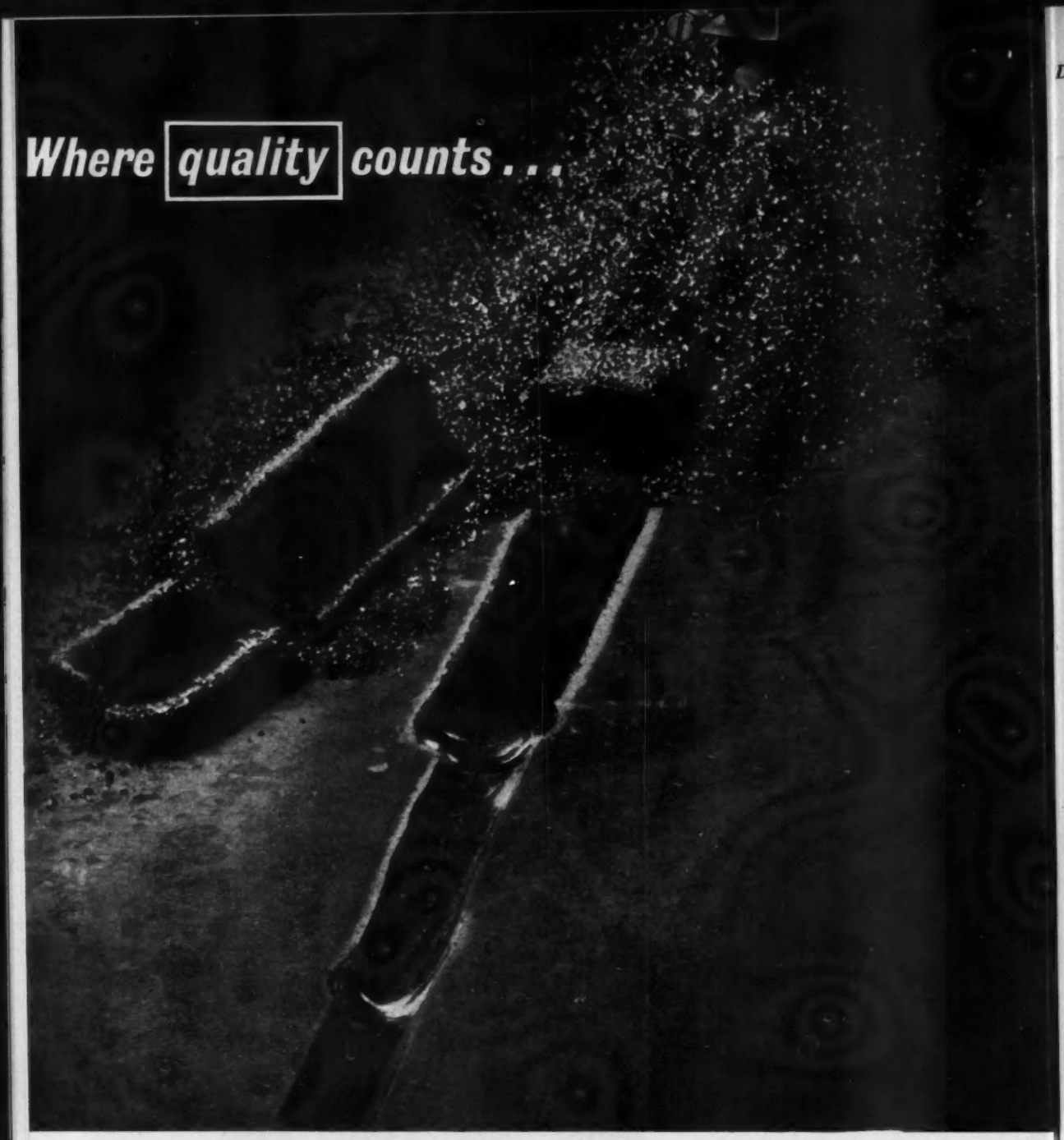

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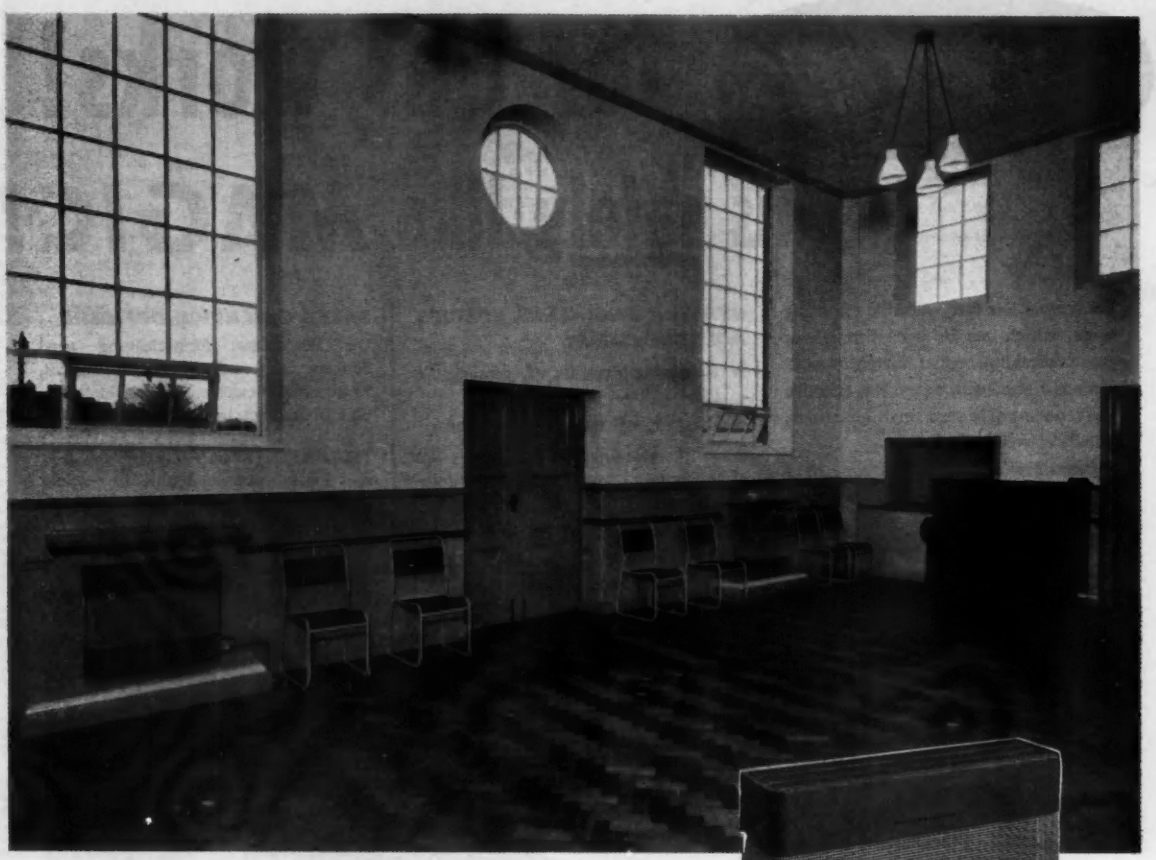

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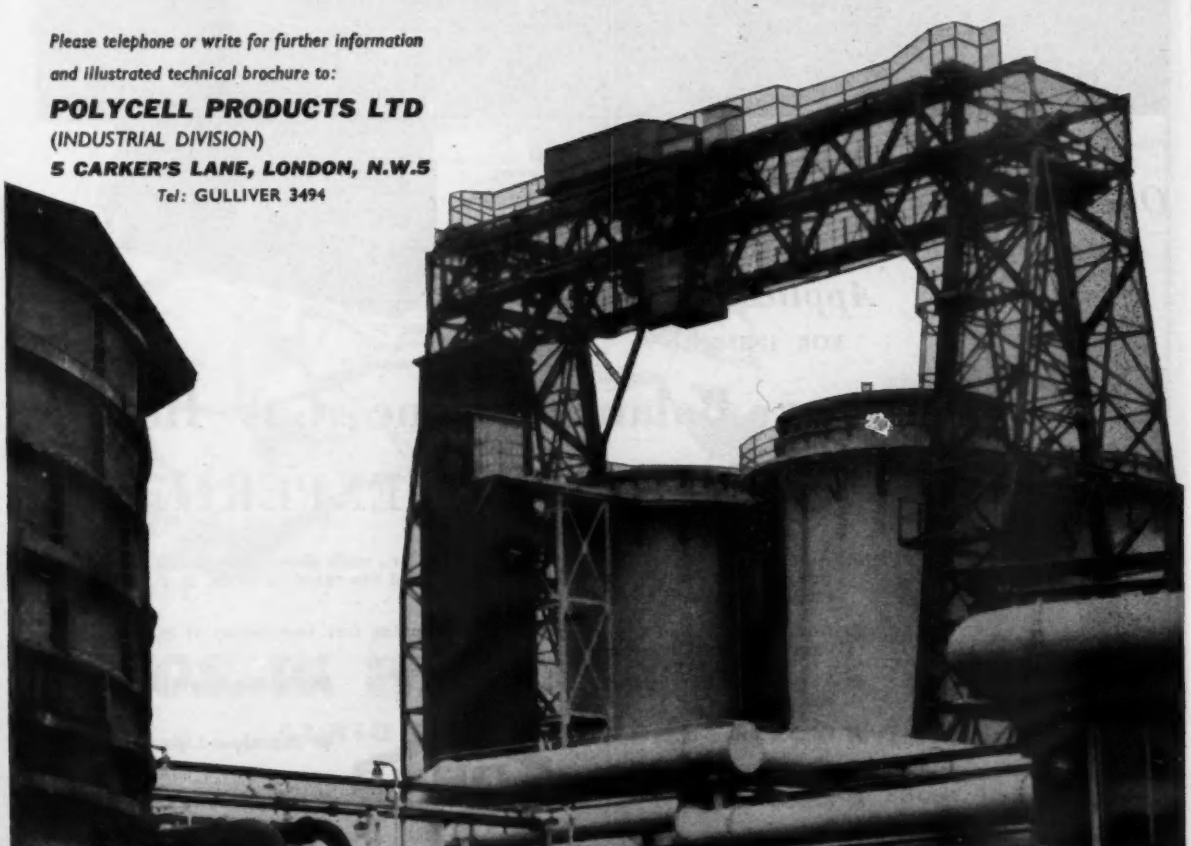

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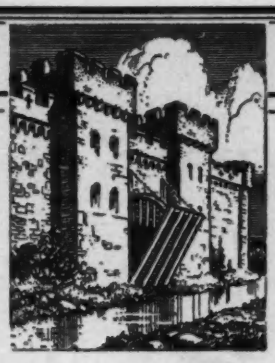

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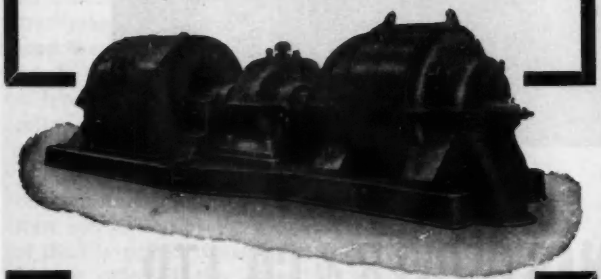

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Gas Journal

VOL. 296 · NO. 4981 DECEMBER 31, 1958

110TH YEAR

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Gas Journal

VOLUME 296. No. 4981 DECEMBER 31, 1958. 110th YEAR

A Year of Encouragement

'THE merriest Christmas since the war' should not have by-passed the readers of this journal, as it may well have done a year ago, due to a very natural feeling of depression. For, with purchase tax anomalies wiped out to give a fairer chance in the domestic appliance market, with the abolition of hire-purchase restrictions, and with hope continuing to build up for new gas-making processes and fuel sources, all during the past year, there is no reason at all why a period of greater stability cannot be looked forward to.

While progress on the production side of the industry has been of a transitional nature, resulting in no outstanding project being completed during 1958, results on the sales side have been more obvious. Over the year appliance sales have shown a heartening upward curve, due primarily to the purchase tax concessions and the lifting of hire-purchase restrictions, already mentioned.

Resentment against purchase tax on appliances, particularly space heaters, came to a head in the early months of the year. On March 7 the 'GAS JOURNAL' presented to the Chancellor of the Exchequer a petition carrying the signatures of 17 M.P.'s, five Trade Unions, well over 100 local authorities, almost 100 companies and many other organisations, requesting the lifting of purchase tax on gas space heaters which, in company with electric heaters, laboured under a 60% tax while oil heaters caried none. In view of this effort it was gratifying to find tax on gas, electric and oil heaters (and water heaters) equalised at 30% shortly afterwards. Meanwhile there remained the crippling effect of hire-purchase restrictions. In September, the Chancellor relaxed certain of these restrictions and, shortly afterwards, all appliances were freed.

The most significant increases have been in the sales of refrigerators and space heaters. Sales of the former were spurred on by the availability (regrettably limited) of the low-priced 'Gascold' refrigerator, but sales of all fridges reflected the powerful public acceptance of refrigeration as one of the necessities of life. In the case of space heaters there were, of course, the tax inducements already referred to, plus the slow moving but nevertheless important pressure of smoke abatement. But it should also be pointed out that this was the first fully co-ordinated advertising campaign, and there can be no doubt about the value obtained from this synchronised and duplicated effort.

Little progress appears to have been made in widening the sales distribution network of the industry by the creation of more dealer outlets, but there have been experiments with door-to-door canvassing and special commission schemes which could have far-reaching results.

As the year draws to a close boom conditions exist in appliance sales, boards' stocks have proved inadequate and manufacturers are working at full pressure to meet demand.

Gas sales to industry are continuously expanding; much of the credit for this must go to the natural advantages of gas in so many processes. But the results being achieved are only as good as they are because of the exceptional development service that the industry is now offering, this has been particularly evident during the past year.

One of the major causes for optimism is the fact that we seem to be approaching the attainment of a better bargaining position in the buying of gas-making fuels. The hydrogenation of small coal under pressure, the use of oil and oil refinery tail gases, and the more economic use of large coal meant that in 1957-58 only 26,025,000 tons of coal were used as compared with 27,668,000 tons in the previous year. While the total gas available was 1.7% more, coal gas made was 5% less. In the first eight months of this year there has been a decrease of 1 mill. tons compared with the corresponding period of 1957-58. By the time the national gas grid becomes a reality, it looks as though the industry will be courted by the various fuels for its custom—especially if the imported methane experiment is successful after the first shipment early in the New Year.

A Happy New Year to All Our Readers

New Plant in 1958

IN our Annual Review, it is customary to refer to new gasmaking plants commissioned during the year, and it is instructive, we think, to call attention at the same time to the direction towards which the methods and system of gas production in such plants are turning.

During the year we have described in some detail three large plants, two vertical installations, and the largest coke oven plant of the National Coal Board at Manvers Main. Of the vertical plants one—White Lund, near Lancaster—was a completely new plant of intermittent vertical chambers, built on what was virtually a virgin site; the other, of continuous vertical retorts, was an extension to the Provan gasworks at Glasgow. The latter, which we had referred to in our review of 'New Plants in Scotland' in 1957, also included a large carburetted water gas plant. Such plants are completely orthodox, and we attempted to stress the outstanding features to be found in each case. The White Lund plant was notable for its carefully planned layout on the type of site which might be fairly described as the gas engineer's dream. Here too, was to be found a design in chamber houses which should satisfy everyone. The cynical layman, who still thinks the gasworks incapable of any æsthetic qualities, was no doubt amazed to hear that this chamber house had been designed by a good architect and approved by the Fine Arts Commission. The potential entrant to the industry should be thrilled by the plant's similarity to a modern chemical plant which may help to make a career in gas worth his serious consideration. The gas engineer will admire the use of aluminium sheets to avoid future maintenance, and the means of communication between the foreman and his men through Tannoy loudspeakers.

At Provan, the plant has been skilfully inserted into an existing site, and care has been taken to ensure that the flow of material from the sidings through the retort house to the coke grading plant is in one direction. The planning of the extensions has made possible the maximum use of existing ancillary plant, together with provision for the importation of coke oven gas and methane. Electrically driven prime movers powered from the grid have been widely used.

The outstanding feature to be seen at Manvers Main, is the incorporation on a very restricted site and at the converging point of three collieries, of a coal cleaning and blending plant, and a large coke oven plant capable of carbonising 3,000 tons of coal a day. Since an existing plant had to be demolished, the building of the new plant needed the most meticulous timetable, so that coke oven gas supplies to the gas board could be maintained. A further refinement is the means for separately screening domestic and metallurgical coke by installing an elaborate conveyor system controlled from a central point with the help of a very comprehensive mimic diagram.

So much for the plants we have described at length in our pages during 1958. There is, however, a feeling of experiment in the air, and new developments may be imminent. This was emphasised by Mr. D. P. Welman, Chairman of the North Western Gas Board, at the opening of the White Lund plant, when he referred to it as 'the newest of the old plants.' A glimpse of what gas production plants may be like in the future was revealed at the Midland Research Station when its new laboratories were opened in April by Sir Cyril Hinchelwood, President of the Royal Society. The visitors were able to see the pilot plant stage of the slagging gasifier and the oil and coal hydrogenation plants. Researches into new means of production of a sulphur-free, non-toxic gas were also in progress. But the type of plant was compact and streamlined. But these new plants are by no means confined to the research centres. The past year has seen decisions to install the first Lurgi high pressure gasification plant at Westfield in Fife, and work has begun on the preparation of the site. The construction of a full-scale plant for the hydrogenation of oil to be followed as soon as possible by coal, has been ½ kgm. at Partington, near Manchester, during the year. Lately we have heard that the West Midlands Gas Board has received permission to build a Lurgi plant at Coleshill, near Coventry.

Progress in oil gasification has been gathering momentum in the past year. The Segas plant at the Isle of Grain is now under test and is making gas in small quantities. It will probably be in full production of 20 mill. cu.ft. of gas per day early in the New Year. At this site, too, it has been decided to extend the oil gasification plant by the installation of a W.D.-Shell process plant to increase gas production by a further 20 mill. cu.ft. per day. The use of refinery gas should not be forgotten, and two outstanding examples of this are the building of a main from Shell Haven to Romford and the connecting of the Southampton gasworks to the Esso refinery at Fawley, together with the necessary reforming plants, which were completed this year.

Undoubtedly the most unorthodox method of gas production is the importation of liquid methane from the Gulf of Mexico to Canvey Island. The technical difficulties involved are immense but, we believe, surmountable. Research has been necessary into the means of ocean transport, the choice of materials to contain the liquefied gas and the means of unloading the tankers at the port. In a few months' time, the North Thames Gas Board's plans, which we referred to earlier in the year, should become an accomplished fact, and the first experimental cargo of liquefied natural gas will arrive in the Thames Estuary.

Looking back over 1958, we think that the gas industry may be justly proud of its achievements in the field of gas production. Although few plants were actually commissioned, those that were represented a high standard of design, but at the same time marked the beginning of the end of the immediate post-war epoch. Less obvious but far more interesting was the initiating of the 'new' gas industry, which shows that the pressure of competition from other fuels brought about by the rise in costs of production, is being met by the gas boards, with the industry's traditional spirit of inventiveness and will to succeed.

Welfare-promoting foundries legislation means more business for gas boards

CONSIDERABLE gas-selling success is being experienced in industries where the impact of the Iron and Steel Foundries Regulations (1953) is just beginning to be felt. These stipulate certain standards for the well-being of personnel employed in those industries. The cleanliness of the air is an important feature.

After Regulations such as these are introduced a fairly liberal amount of time is usually allowed before any pressure is brought to bear. And it is a fact that only recently have H.M. Inspectors taken out their notebooks in a really purposeful way so far as these particular Regulations are concerned.

Many firms are finding that gas provides the comparatively easy path to compliance.

Course of action

This piece of legislation has provided the gas industry with an 'opportunity'—a sometimes rather nebulous term, but for once the course of action is obvious. And it can be said quite fairly that the gas industry is doing everything that any business organisation with an eye to success ought to be doing.

We published in our 'GAS IN INDUSTRY' supplement of this month, a description of the activities of the Watson House Industrial Laboratory, together with a paper by Mr. Henshilwood and Mr. Wharton, of that Laboratory.

These articles, we think, managed to convey the sense of urgency with which the industry is treating the question of the importance of this load . . . not just by flooding the market with bright salesmen, but by backing up highly-qualified representatives with what must be a unique technical service, wherein the potential consumer may find his own economics more searchingly examined by the experts of the gas industry than he had himself ever considered practicable.

A full-scale brochure which will publicise what gas has to offer to the foundry-owner seeking to comply with the Regulations will be published in the new year. But in advance of this will be a cocktail preparation—a most attractive leaflet called 'Foundry Uses for Gas,' which will give some idea of the applications of gas to sand drying, ladle heating, core and mould drying, heat treatment and annealing.

Operator galvanising a ship's mast head lamp over a gas-fired galvanising bath in a Birmingham works.

The success already encountered with this sort of specialisation has given emphasis to the obvious need for more concentration on one industry at a time.

In future boards will be encouraged to publicise case histories in every sort of media to show the industrial world just what the application of gas can do in old and new processes.

An obvious example of how gas can infiltrate an industry with almost

Industrial

revolutionary results is that of the manufacture of ceramics.

A paper presented last March to the Institute of Fuel and the North Staffordshire Fuel Society highlighted the increasingly important part that gas plays in the ceramic industry. The paper was read by Mr. K. Davis and Mr. L. Walker, of the West Midlands Gas Board. In 1945 gas used for the firing of ceramics in the area amounted to 1,250 mill. cu.ft. Since then the consumption for this purpose has increased fivefold.

Comparable progress

The authors pointed out: 'The ceramic industry today uses town gas for all processes requiring the efficient application of heat, such as clay and ware drying, flint and bone calcination, frit melting, and all types of firing embracing biscuit, glost and decoration of both china and earthenware domestic pottery, glazed and floor tiles, sanitary earthenware, fireclay sanitary ware, electrical porcelain and high grade refractories. When the advances made by the ceramic industry since the end of the war are considered it is only fitting that comparable progress should have been made in the methods of firing adopted and today, more than ever before, manufacturers are installing

new plant to procure more economical and efficient production.'

One of the year's most important developments has been the paper on the subject of 'The Design of Air Blast Tunnel Burners,' by Mr. W. E. Francis, which was read to the Autumn Research Meeting. Although the developments in this field are admirable, however, the trouble is that manufacturers find it difficult to keep up with the gas industry's progress and the boards find themselves obliged to produce these highly-advanced burners on their own account when they are required—if they wish the perfection they aim at to be achieved. The West Midlands Board is trying to establish a standard incorporating all the fruits of research to date. They hope to persuade manufacturers to adopt this standard in future.

The publicity given to industrial gas progress is inclined to be less than that afforded to the production side. However, the Industrial Gas Information Bureau published 33 reports this year, of which 31 were non-confidential. Many of these found their way into the technical Press, and some were even adopted by manufacturers as sales literature.

Shot-blasting

An important new load has been that of drying steel plates prior to shot-blasting in shipyards. Shot-blasting is in general use in the ship-building industry, to remove mill-scale from steel plates and to make the paint adhere to their surfaces.

The process work-hardens the surface layers of the plate, and, as a result, its mechanical properties are influenced, fatigue strength particularly being improved.

These plates are very large and thick. They must be dried before shot-blasting. There are two methods of doing this—one is to force hot air at the plates; this seems to be considered the most satisfactory way. The other is to apply radiant heating.

The Industrial Gas Development Committee met during the year to discuss research and development projects within the boards. Among the interesting features brought to their attention were two devices produced, initially, for the use of practical classes in schools.

One of these was a West Midlands Gas Board idea—a pottery kiln on a very small scale. A limited quantity has already been produced by Universal Furnaces Ltd.

An aluminium furnace for school-work, designed by the North Western Gas Board, has also found a place in industry, where it is being used to melt small quantities of metals very conveniently and efficiently.

'Flame Protection Practice, 1956,' was reprinted during the year as a result of the very great demand for it. The Industrial Gas Committee first published a report setting standards for designers and users in 1950. These standards were achieved and unsuitable principles eliminated. Further development necessitated the 1956 publication.

Changing trends point to gas industry's firmer position

THE gas industry owes much of its illustrious past to coal. A substantial part of its present, too, is dependent upon its availability. Unfortunately, however, the competitive conditions in present-day fuel markets do not permit a simple faith in one source of supply. Coal costs too much, especially in the grades required to run conventional gas-making plant.

As stockpiles of lower grades accumulate, so does the temptation rise to push up the price of the larger sizes and the better qualities. One might argue that it has to. But by the same law, so does the gas industry—which by no means has monopoly in the fields in which it considers itself superior—have to exercise its renowned ingenuity by producing gas less expensively so as to keep its product competitive.

And one of the ways in which it might do this is by using the hydrogenation process. This could mean the use of more small coal. But it could also mean that much more oil would be used. The way things are at the moment, no amount of talk about the 'unreliability' of oil supplies will alter the fact that oil-producing countries will continue, must continue, to sustain their economies by selling at competitive prices.

The gas industry is in an adventurous mood. Although it is reserved in its comments about the importation of liquid methane—and indeed it is much too early to anticipate how successful this project will be—the thought is there: Supposing it is successful, to the extent that substantial supplies could be brought here at low cost? Supposing that by this time there is a national gas grid?

So the gas industry continues to make the bulk of its supplies from coal, meanwhile, like an agnostic, reserving its faith for a substantial sign of some sort.

There have been no price increases in coal supplied to the gas boards during the calendar year of 1958—neither have there been any reductions. The latter point is not intended to be humorous considering the fact that the total amount of coal used by the boards is falling. For example, the quantity used for gas making in 1957-58 was 26,025,000 tons as against 27,668,000 in the previous year. And while the total gas available was 1.7% more, the *coal* gas made was 5% less. In the first eight months of the present financial year there has been a decrease of 1 mill. tons compared with the corresponding period of 1957-58.

Coal

The Government's decision to abolish control over supplies last November—including the 'programmes' in respect of big industrial consumers—means that the boards may now go back to the relative freedom of purchase they enjoyed before the war. Although the move is to be welcomed it obviously does not mean that the types of coal that have been in short supply will automatically become freely available again. But at least it should be easier now to ascertain the true nature of the market.

For the sake of good order, for the time being it has been agreed between the N.C.B. and the gas industry that an unofficial 'programme' will be operative during the present winter to allow time for contracts to be drawn up with effect from next April.

More favourable ?

It might be that the rapidly altering situation will result in a more favourable attitude towards the application of the coal price structure—the basis of its selling system. The gas industry has never found this formula particularly palatable, to say the least of it, chiefly because of the fluctuations it can suffer apparently from commercial expediency rather than from such considerations as quality.

Certainly the gas industry appears to be moving towards a better position than it has enjoyed since the beginning of the last war in respect of materials to be used for gas making.

H.P. surprise takes the drudgery out of promotional work

THE most extraordinary feature of this year's promotional work is that there is nothing—anyway almost nothing—about which one could complain.

With the shock removal of hire purchase restrictions there was a tendency towards some confusion. What was the use, after all, of crashing-in, when stocks, which had admittedly been built up for the big campaigns, were nevertheless inadequate to meet the Klondike rush of the hitherto frustrated?

The necessity for the cooker campaign was obviated altogether by the kind intervention of the Chancellor of the Exchequer. And it was cancelled. But there will be a cooker campaign next year, bigger and better than ever to counter the inevitable simmering down of now h.p.-happy housewives.

The autumn co-ordinated space heating campaign was on, because the abolition of restrictions came later. We did quite nicely without any assistance, ringing up £700,000 on the cash registers in the process of selling 60,000 space heaters. This was an increase of 168% on last year's campaign effort, when only 22,000 appliances were sold.

Seal of Approval

Another important event of the year was the inauguration of the Gas Council Seal of Approval for domestic appliances.

The Seal is now attached to all domestic gas appliances sold through the showrooms of the gas boards and approved dealers. It is a visual guarantee to the public that the appliance has been tested in the gas industry's own laboratories and has fully satisfied all the requirements in respect to design, safety and performance. While it is stressed that the Seal is not 'just another selling stunt' —to quote the words of Dr. R. S. Edwards, who is chairman of the Appliances Inspection Committee at Watson House—there can be no doubt of its promotional value. It is in fact being widely publicised.

Exhibitions at which the Gas Council took stand-space included the Ideal Home Exhibition; the Health Exhibition; International Hospital Equipment; the Production Exhibition; Youth in the Kitchen; the Royal Highland Show; the Cremation Conference; the Royal Show and the Royal Welsh Show; the Food Fair; the Fuel Efficiency Exhibition; National Housing and Town Planning; the Dairy Show; and the Smithfield Show.

One of the most successful exhibits was at the Hulton's Boys and Girls Exhibition at Olympia in August. The stand featured 'Carol' and 'Chris' of 'What's Cooking' fame.

For those who do not read the teenage Press, this is a regular comic strip advertisement in *Girl*, a Hulton full-colour weekly publication. The two young bachelor girl heroines were played at the exhibition by home service advisers whose resemblance to their fictitious counterparts was so strong that children mobbed them for autographs.

In addition to *Girl*, two other Hulton colour-strip publications are used as gas media—*Eagle* and *Swift*.

There were more than 35,000 entries for the Youth in the Kitchen competition, the finals of which were held in May.

Over 2 mill. copies of leaflet publications were sent out during the year by the Gas Council.

More Publicity Charts were distributed within the industry, including one on the topic of showrooms.

Publicity

These charts aim at showing, at a glance, promotional media available where the one subject is concerned. Earlier Charts were on large-scale catering, hot water and hygiene, smoke prevention, cooking in the home and refrigeration.

The Home Service divisions of the Gas Council and area boards continue to play a vital part in promoting sales of gas and appliances. Their activities call for remarkable adaptability on the part of the advisers themselves. As examples, one had to broadcast to hospitals, others judged at an old age pensioners' cake contest and took part in a White Fish Authority competition. Courses were run for brides-to-be, and in the Eastern area locally-employed West Indians were instructed in the ways of English cooking.

Basic value

But the home service adviser's basic value continues to lie in her ability to make friends for the gas industry on the district and among manufac-

On the gas stand at the Schoolboys' Exhibition, jointly presented by the Eastern, South Eastern, and North Thames Gas Boards, the emphasis was on audience participation, and on careers, not only in the gas industry but for the boy who would like to take up catering. Pictured here were some of the young visitors watching with keen interest as one of the well-known chefs, who gave demonstrations, performed his culinary rites.

turing food firms, where her advice can be of immense value.

Forty girls apply for jobs as home service advisers each month.

Eight million people are now watching Gas Council Films. The following productions were released during the year:

'All Lit Up,' a one-reel colour cartoon showing the advantages of the gas poker, came out in January. It was shown at the Edinburgh Festival in September.

'Smokeless Fuel Conversions,' a one-reel film intended for showing to local authorities and others, demonstrates the various ways of replacing old fashioned grates with smokeless appliances, to comply with the Clean Air Bill in smokeless areas.

Also completed, but not put in full distribution were:

'Paths of Progress,' a two-reel colour film dealing with research and development in the gas industry, and 'Centre of Attraction,' a two-reel colour film intended as a general interest subject. It shows the interesting features of Hyde Park Corner, both historically and in modern times.

Four 15-second filmlets for showing in public cinemas were also produced and were extensively used by area boards. These filmlets covered: Water heating, home laundry, space heating and cooking. In addition, filmlets were made by some area boards.

Now in production is a colour film, to run approximately 20 minutes. It is designed to follow logically on 'Guilty Chimneys.' The new film shows what is being done by the operation of the Clean Air Act and how everyone's co-operation is needed to ensure that the Act succeeds.

During the summer a circular was sent to every borrower on the Film Library mailing list, a total of over 12,000. The intention was to announce the availability of new films and to ensure that the mailing list was accurate. The response was extremely good. Film Library bookings from September onwards rose sharply.

A special show was arranged in November for an invited audience at the British Council Theatre to introduce new films.

Successful opposition to clause in Coventry Bill

IN accordance with custom, the Gas Council reviewed the Private Bills deposited for the session 1957-58, some of which are of particular interest.

The Coventry Corporation Bill proposed to authorise the Coventry Corporation to supply sludge gas from its sewage plant to premises within a certain distance from that plant. The Bill was opposed by the West Midlands Gas Board with the assistance of the Gas Council on the ground that the supply of gas by the Corporation would have been contrary to the provisions of the Gas Act, which provide that, subject to certain exceptions, no person may supply through pipes without the permission of the appropriate area board. As a result of this opposition, the clause in question was deleted from the Bill.

The Shell (Stanlow to Partington pipeline) Bill was also opposed by the North Western Gas Board on somewhat similar grounds, and as a result of a settlement, a provision was inserted in the Bill that the powers granted by the Bill should not be detrimental to the provisions of the Gas Act, 1948.

The word 'gas'

These Bills have naturally led to some consideration of the meaning of the word 'gas,' which is not defined in the Gas Act.

Another Bill, that promoted by the Birmingham Corporation, related to the reception of effluent from gasworks into the sewers of the Corporation. The Bill sought to impose charges for the reception and conveyance of gasworks effluent in conformity with a certain formula contained in the Bill. This Bill again was opposed by the West Midlands Gas Board assisted by the Gas Council.

The opposition to the Bill in the House of Commons was not entirely satisfactory since, although an appeal to the Minister from the Corporation with regard to the charge was conceded, the Minister would have been bound by the formula contained in the Bill and, therefore, would have been precluded from taking into consideration any special circumstances and conditions which might have been applicable to gasworks' effluent. It was therefore necessary to continue the opposition in the House of Lords but, before the actual hearing, a proposal for a settlement put forward by the Corporation was accepted, under which an appeal to the Minister would have been allowed unfettered by the application of any statutory formula.

The disposal of effluent presents a complicated problem which will increase as gas manufacture becomes more and more concentrated in large scale works. Such works may well be situated in rural areas where the sewage purification plant may be quite inadequate. This is a matter which is having the consideration of the Central Advisory Water Committee, before which evidence has been given on behalf of the Gas Council. The Committee have not yet reported on this matter.

During the year another Government Committee under the Chairmanship of Lord Reading was appointed to consider the law relating to highways. A Memorandum submitted to this Committee by the Gas Council called attention to the considerable number of Acts containing different and sometimes inconsistent provisions regarding the sub-surface works of public utility undertakers and, in particular, the assessment of compensation where such apparatus has to be moved. This Committee have not yet reported.

Closely related to highways are the bridges by which such highways are frequently carried over railways, canals, rivers, etc. Although it is clear that under the Gas Act gas boards have the right to break open the actual highway carried by the bridge and lay mains therein, the rights of the boards where such mains are attached to the fabric of bridges outside the actual highway are somewhat obscure and are receiving close investigation.

Legal

Further knowledge

The agreement with the BP Exploration Co., Ltd., who are searching for natural gas on behalf of the Gas Council, has been extended for another year, after which it is possible that some modification of the agreement will be necessary to meet the further knowledge that has been obtained.

The legal complications arising from the possibility of the underground storage of gas have also received consideration, and in this connection the laws of Germany and of France, where the same problem arises, have been studied.

During the year board solicitors have held their bi-monthly meetings at which a variety of problems of general interest were discussed. These meetings have taken place in the areas of the different boards in rotation.

A CONTRIBUTION TO MODERN LIFE

Better catering:

To suggest that gas makes a contribution to the arts may appear presumptuous, but there are few theatres and concert halls where gas does not contribute to the smooth and swift catering, which aids the enjoyment of audiences. At 'open air' events the part played by gas is no less important, as witness the National Eisteddfod at Ebbw Vale where some 50,000 meals for visitors were cooked on gas appliances. Our picture shows some of this equipment being inspected by a group including Mr. Mervyn Hughes, caterer; Mr. G. R. Davies, Assistant Secretary, Wales Gas Board; Mr. D. S. Davies, Engineer and Manager, Ebbw Vale; and Mr. T. Mervyn Jones, Chairman, Wales Gas Board.

Better roads:

Pictured below is one of the North Thames Gas Board's tar tankers engaged in tar spraying operations on the new London to Yorkshire motor road—the first major road-building project to be authorised by the Government for many years. In the face of keen competition, the N.T.G.B. won the contract for the first two sections of the road—25 miles running north from Luton, Bedfordshire. It will require 240,000 gal. of tar, the coverage being 3-4 sq. yd. per gal. This tar will form a waterproofing for the first course in the road's construction, and will be sprayed on the 6-in.-deep granular sub-base. It will also help to make the surface suitable for carrying constructional traffic.

Better crops:

The popularity of gas liquor as a fertilising service is growing. Some areas have been building this business for some years; it was first introduced by the North Eastern Gas Board last summer. Since then, large areas of grassland in the East and West Ridings of Yorkshire have been treated with gas liquor with entirely successful results. Pictured below, gas liquor is off-loaded from a tanker into a 500-gal. bowser on a Yorkshire farm. Gas liquor has only to be mixed with water to make it ready for application and is not easily leached from the soil.

Stock-piling very low compared with other solid fuel producers

Coke

THE steps that the gas industry has taken to adjust coke production in accordance with the changing market have been successful to the extent that stocks have been maintained during 1958 at a level only a little higher than in the previous year.

Just how important it was to watch this matter so carefully is revealed when one looks at the position of other solid fuel producers.

At the end of November coal stocks in this country stood at 38 mill. tons, of which 19 mill. tons were at collieries and opencast sites. The total represents an increase of 10 mill. tons over last year.

Hard coke stocks in November stood at over 3.5 mill. tons compared with 2 mill. tons at the same date in the previous year.

But gas coke in stock amounted to 2.75 tons compared with 2.65 tons—an increase of only 100,000 tons.

Sales continue at an even level, exports rising a little and inland sales falling in accord with the national solid fuel situation. There are several reasons why the sale of coke is not achieving anything like the desired level.

The most important factor is that of the condition of British industry in general. It is a highly controversial question as to whether there is a genuine industrial depression or not. But what cannot be overlooked is that the widely accepted 'barometer'—sales figures for steel—is showing a drop of between 15% and 20%.

Serious inroads

In the home market, too, a mild winter did not help. But a serious problem in the European markets normally reserved for British coke is that of the serious inroads being made by a great deal of very cheap Russian and Polish coke.

Similar problems to these are being experienced by the solid fuel producers throughout Europe. There is a very strong feeling building up against American-sponsored oil imports to the detriment of indigenous fuels. West Germany, for example, is more than merely concerned about this—she has actually taken steps to prevent the oil boom from crippling her mines and solid fuel plant. At the height of her industrial expansion she is stopping further contracts for oil imports from being signed.

In Britain, while pits and men were being declared redundant during the past year, and indigenous fuel-producing capacity generally was being restricted, £280 mill. worth of oil was imported, paid for in foreign currency, and consumed in appliances sold by the sort of propaganda methods that the nationalised industries cannot use.

While the fresh air of fair competition is always desirable, it seems rather strange that there should be such lack of restriction on foreign spending, which automatically offsets the value of export earnings.

During the year a coke-fired boiler of unique design and exceptionally high thermal efficiency, widely used on the Continent for central heating and hot water supplies in large buildings, was introduced to this country by Newton, Chambers & Co., Ltd.

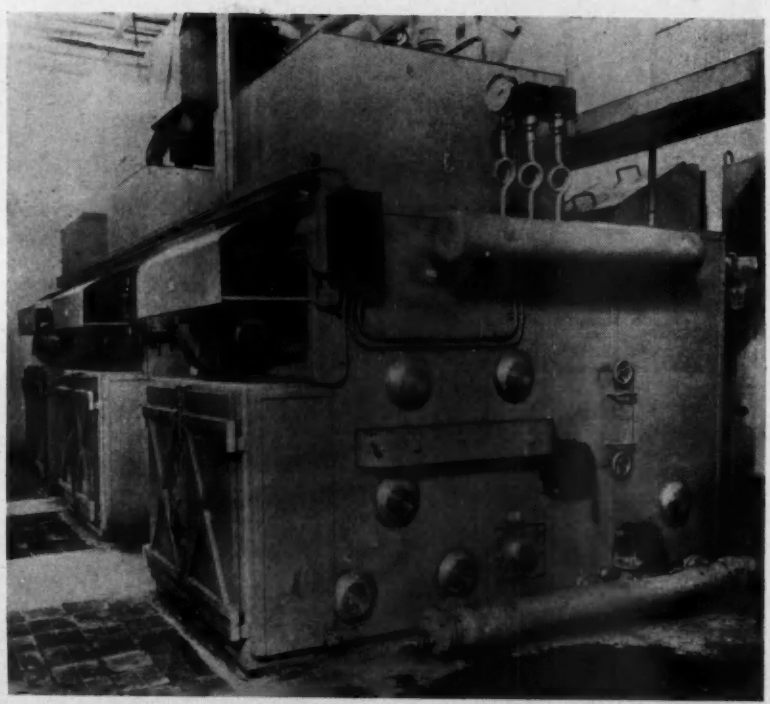
It was the Emma boiler—known here as the Redfyre Emma—and Newton Chambers have entered into arrangements with Bronswerk N.V. of Holland for its manufacture and installation in the United Kingdom.

A feature of the design of this boiler is that it incorporates a secondary combustion chamber and is, in effect, a gas producer as well as a boiler. Consequently, the Emma ensures a thermal efficiency in the 85% to 90% range, achieving a saving of 20-25% in fuel costs when compared with the ordinary type of coke-fired boiler.

Appliance testing

The Gas Council and the N.C.B. are now perfecting plans for the formation of a joint committee of the two industries to deal with the testing and approval of domestic solid fuel appliances.

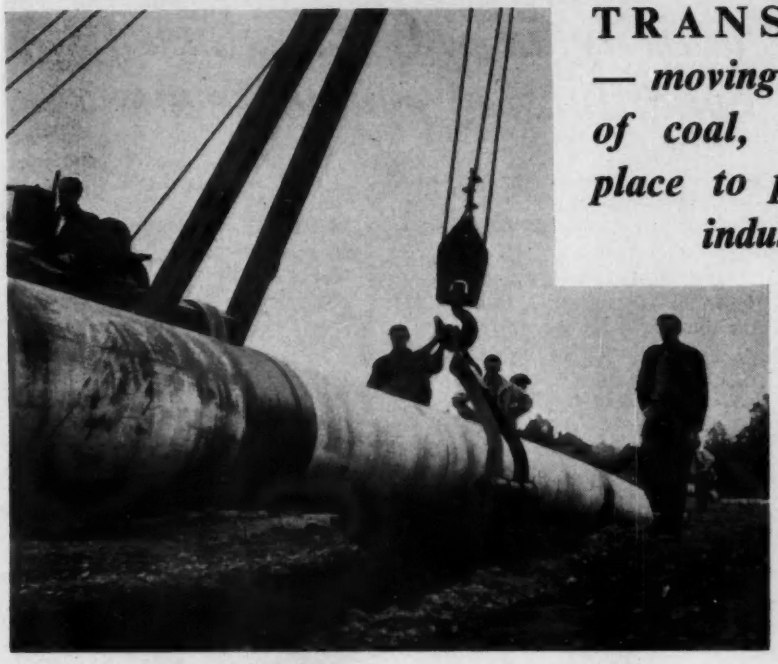
The laboratories of the Gas Council will carry out this work. The name of the committee has not yet been agreed, but it is known that the functions of the Solid Smokeless Fuels Federation will not be affected.



An installation of three Emma boilers at a hospital in Holland. Each boiler has a capacity of 1.8 mill. B.t.u. an hour, giving the installation a total capacity of 4.5 mill. B.t.u. an hour.

TRANSPORTATION

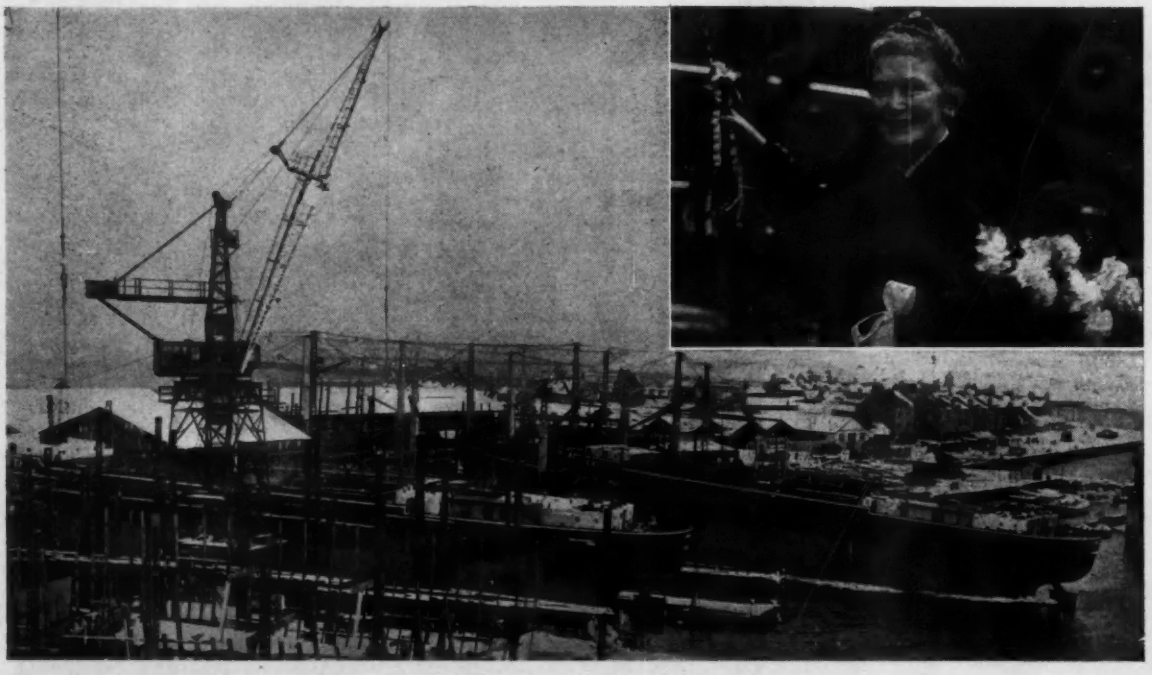
— moving large quantities of coal, coke or gas from place to place is part of the industry's function



Shellhaven-Romford pipeline *The North Thames Gas Board's 24-in. steel main to carry tail gases 15½ miles from Shellhaven oil refinery to Romford (Essex) gasworks represents one of the biggest pipe operations carried out in Great Britain. Extensions to Canvey Island to take gasified imported liquid methane and to Coryton for additional tail gases from the refinery will complete the project. Our photograph shows side boom cranes 'snaking' a long length of welded and tested pipeline into the trench.*

The last link *The final linking up in a 295-mile bulk supply main which completes the South Western Gas Board's gas grid system between Evesham and Penzance was completed in October. The final linking up ceremony was carried out by Sir Harold Smith, Chairman of the Gas Council, watched in our photograph by Mr. C. H. Chester, S.W.G.B. Chairman.*

New S.E.G.B. colliers *In February the South Eastern Gas Board's collier, m.v. Ewell, was launched; inset, Dame Alix Meynell, D.B.E., is seen performing the naming ceremony. In April the Board's latest up-river collier, the m.v. Camberwell, was launched, also at Aberdeen. The launching ceremony was by Mrs. V. W. Stanton, wife of the Commercial Manager.*



Considerable activity in wages, salaries, terms and conditions of employment

THE year has been one of considerable deliberation and activity in the field of industrial relations. Not only have claims from the various trades unions for increases in wages and salaries been considered and settled in respect of all those classes of employees whose terms and conditions of employment come within the jurisdiction of the various national negotiating bodies; but various problems relating to other terms and conditions of employment have also been agreed. As generally in the case of most other industries, more especially in the public sector, these problems have been considered in the context of the current economic state of the industry and of the nation, of whom we are all members, in the common ultimate interests of all concerned. Inflation is the dire enemy of all, especially of those on relatively fixed wages and salaries.

Early in the year, the workers' side of the National Joint Industrial Council for the Gas Industry submitted a written request that consideration might be given to their claim for a general wages increase based on the changes that had taken place in the cost of living since the last wages settlement. The claim was considered at a subsequent meeting of the National Joint Industrial Council, when the workers' side spoke to the claim. This statement of case on the part of the workers' side was considered at a later meeting when the employers' side made a concrete offer. The meeting was adjourned to enable the workers' side to consider the offer. On resumption of negotiations, the workers' side felt unable to accept the offer, and it was decided that the claim should be submitted to arbitration. Accordingly, the claim was considered by a special Board of Arbitration in August this year. The Board awarded an increase of 2d. an hour to all employees subject to the jurisdiction of the National Joint Industrial Council, with effect from August 3, 1958.

Into line

Later in the year, the claim for a wage increase submitted by the Confederation of Shipbuilding and Engineering Unions in respect of maintenance craftsmen was settled at 2½d. an hour increase, the rates of pay for gasfitters being correspondingly increased by ½d. an hour as from August 31, in order to bring such craftsmen on the distribution side of the industry into line with the maintenance craftsmen.

One of the landmarks in the history of the industry was the introduction of a Manual Workers' Pension Scheme for the industry, which came into force on June 1, 1958.

At a meeting of the National Joint Industrial Council early this year, a report from the Gasfitters' National Classification Scheme Sub-Committee relating to a proposal from an Area Joint Industrial Council concerning a possible reduction of the period of apprenticeship for gasfitters, was considered. The recommendation was to the effect that the rules of the scheme should be amended so that where

Industrial Relations and Education

exceptional circumstances prevail in an area, the normal period of apprenticeship should be lessened to a period agreed by the National Joint Industrial Council, in order that the particular Area Joint Industrial Council might be permitted to reduce the period, at the discretion of the area board, to boys taken into employment over the age of 16 years. The reduced period suggested was to be for not less than four years and was to be completed by the age of 21 years and by the attainment of the examination qualification of 1st class gasfitter. Permission to reduce the period of apprenticeship was granted by the National Joint Industrial council subject to the Area Joint Industrial Council reporting annually on the number of times this discretion had been exercised during the preceding 12 months. This question of the reduction in the five year period for apprentices has in the last decade been frequently discussed in publications and in public discussions concerned wtih the problems of industrial relations.

With regard to intermediate grades, consideration was given during the year to a claim from the unions in respect of increases in remuneration. Agreement was reached for graduated increases, in respect of these employees, on all steps in the various grades.

The Overtime Bonus Scheme covering these employees in Conditions I was amended as from May this year to the effect that cash bonus in respect of authorised overtime shall be calculated to the nearest half-hour and paid monthly as to 3d. an hour in respect of each £20 of annual salary or part thereof, instead of 3d. an hour in respect of each £25 of annual salary, as before.

One-twelfth

It was also agreed during the year that as from June, those employees with under 12 months' service as at June 1 in any one year, shall be entitled to receive one-twelfth of their annual holiday entitlement for each complete calendar month of continuous service plus such bank, statutory and local holidays as fall within their period of service. Previously, employees with under 12 months' service were entitled to one day's annual holiday for each complete calendar month of continuous service plus such bank, statutory and local holidays as fall within their period of service.

The employers' side of the National Joint Council for Gas Staffs had to consider a claim, early in the year, from the staffs' side for an increase in salaries. After consideration of the statement of case submitted by the staffs' side, the employers' side made a concrete offer of a graduated character. After due consideration, this offer was accepted by the staffs' side, and the award came into effect on September 1 this year. In addition, a revision of the Junior Staff scales was agreed to take effect as from the same date.

Consideration of the question of London weighting has been proceeding for some time, without agreement being reached. It was decided, therefore, to refer the question to the Industrial Court which awarded various increases over the previous weighting, such increases to operate as from September 1 this year. The award was in substance equivalent to what the employers had already offered and the staffs had rejected.

Amendment was also made to the

Overtime Bonus Scheme to the effect that the bonus payment for overtime was increased from 3d. an hour per £25 of salary to 3d. an hour per £20 of salary with effect from February of this year.

The Senior Gas Officers' Joint Council considered during the year claims for increases in salary as well as for the recognition of London weighting in respect of officers. Agreement was reached with regard to graduated increases for officers falling within the jurisdiction of the Senior Gas Officers' Joint Council as far as terms and conditions of employment are concerned, these increases on the salaries tables taking effect from November 1 this year. Furthermore, the principle of London weighting in respect of such officers was recognised for the first time, and agreement was reached on the appropriate amounts.

It is six years since the general programme of education and training for the gas industry was approved by the Minister of Fuel and Power, and the area boards' activities in the field of education and training have expanded to an extent considerably beyond that recommended in the general programme.

Local circumstances

This progress has been achieved by regarding the approved programme as the minimum practice within the industry from which area boards may depart in order to meet variations in local circumstances. Furthermore, it is the policy of the Gas Council to ensure that in so far as it proves practicable, all employees in the industry should have an equal opportunity of receiving the best training to fit them for their work within the industry, no matter in which locality they may work.

A convenient way of reviewing the field of education and training is to look in turn at each of the principal categories of training that is carried out.

Currently some 3,900 employees are attending courses leading to the examinations in gas fitting set by the City and Guilds of London Institute. In some cases, these employees are attending courses administered wholly by the local education authority; and in other cases the courses are administered solely by the area board; and in the remainder, the courses are administered jointly by the local education authorities and the area boards. Of these employees, 78% are being allowed day release to attend such courses.

In addition, in many area boards, numerous short intensive or refresher courses at board training centres, both for apprentices and qualified gasfitters, have been run. Apart from apprentices in gas fitting, there are over 500 apprentices undergoing training in other crafts.

During the year some 630 student apprentices and pupils were undergoing training in the area boards. Of these, 154 were attending sandwich courses. Gas engineering sandwich courses continue to be carried out at the Royal Technical College, Salford, the Birmingham College of Technology, the Westminster Technical College and the Enfield Technical College.

An interesting development in this field is the establishment by the North Western Gas Board of a University Studentship Scheme. Under this scheme, University Studentships are available to student apprentices who, having completed a year's training with the Board, gain entry to a university. From the time of entering the university to the time of completion of a degree course, they receive a salary, and their tuition fees are paid by the Board. Apprentices accepting such studentships give a verbal undertaking to stay at least two years with the Board after graduating, and they are expected to spend 13 weeks' practical training with the Board each year, except in their final year.

A large number of employees are following professional and commercial courses of many different kinds by part-time study at local technical and commercial colleges. Of these, some 200 are studying for qualifications in accountancy; 70 for secretarial qualifications; nearly 100 management and business administration; over 300 shorthand and typing. In addition, opportunities are given to a considerable number of employees of managerial level and other staff, to attend courses organised by local authorities, universities, professional bodies, and the like.

Sales staff

Although the broad pattern of education and training within the industry which has now emerged remains generally unchanged, from time to time particular attention is devoted to the training of one or other kind of employees. During the year under review one activity which has particularly engaged the attention of area boards has been the training of sales staff. A sales training manual published by the Gas Council, has been distributed throughout the area boards. This is mainly intended to provide the basis for improving the standard of salesmanship among sales men and women within the industry. A number of areas boards have already commenced training linked to this manual. For instance, in the East Midlands Gas Board, this has taken the form of evening discussion groups,

A paper on 'Gas and Education' gained for Mr. G. H. Clarke, of the North Thames Gas Board, the Gas Council Challenge Trophy. This is awarded annually to the winner of the Gas Salesmen's Circles competition for the best paper given at a Circle meeting during the year. Mr. Clarke, who is special representative in the Public Services Section of the Headquarters Division of the North Thames Gas Board, was presented with the trophy at Murdoch House, headquarters of the Gas Council, on October 6, by Sir Harold Smith, Chairman of the Gas Council. Mr. Clarke, who is 50, has served the gas industry in London for 32 years—originally with the Gas Light & Coke Company and subsequently with the North Thames Gas Board. Runners-up in the competition were: Mr. Owen J. Jones, district salesman, Bridgend undertaking, Wales Gas Board ('Space Heating from the Salesman's Standpoint'), and Mr. James Dunbar, Helensburgh District, Scottish Gas Board ('Fact and Fancy').

and so far several hundred sales staff have worked through the manual. In the Eastern Board, as a first stage, three-day courses have been organised which are to be followed by continued study of the manual locally under the direction of trainers, who will receive special training not only in sales technique, but also in the art of teaching. The Southern Gas Board has also already embarked upon special courses in conjunction with the study of the manual. The South Eastern Board have continued the series of two- or three-day courses in salesmanship provided by Mr. Knights, which were established two years ago. So far a total of some 900 employees have attended these courses.

Several area boards embarked upon programmes of supervisory training during the year, while others continued with the training courses established in previous years. Attention is being given both to the training of office supervisors and those responsible for supervision on the works or district. T.W.I. courses were again used extensively. During 1957/1958 nearly 1,500 employees attended T.W.I. courses.

Four more of the Gas Council's residential courses in management were held at Brooklands County Technical College, and again students have been drawn from as many branches of the industry as possible. Area boards also have continued to run their own executive development and management training courses. A notable development in this field is the establishment by the North Western Board of its own staff college at Mere.

Intensive course

A new development was initiated in October, 1957, when the Gas Council arranged with the Institute of Engineering Production of Birmingham University, for 20 senior employees of the industry to receive a fortnight's intensive course enabling the students to examine modern developments and trends in operational research, and to discuss the application of these techniques to the problems of the gas industry. Consideration is being given to the repetition of this course in the forthcoming academic year in the light of experience gained on the first course.

The gas industry continued to avail itself of management courses run by such outside organisations as an Oxford College and the Administrative Staff College, for the training of some of its more senior executives.

The industry once again supported numerous courses such as those run by the Outward Bound Trust, the National Association of Boys Clubs and the Scottish Industrial Camps Association, which give character training to young people. Many hundreds of employees have also attended courses lasting from a matter of hours to several weeks, at area board training centres. A wide variety of subjects is covered by these courses; for example, the use of the telephone, operation of new appliances, human relations, safety and accident prevention, exhibition work, and coke utilisation.

Greater interest in the training of mains and service layers has been shown during the year and several boards are about to commence training activities of this kind.

At the commencement of the year under review, four area boards in the south-eastern part of England, together with the Gas Council, collaborated in running a short works course for public schoolboys, in order to give a brief but clear insight into the work and future prosperity of the gas industry, thereby encouraging boys attending the course to enter the industry, and to help boys from public schools to choose a worthwhile career.

Following the success of this measure, the Gas Council decided to repeat the course, and preparations were made during the year for a similar course to be held in conjunction with the four Boards covering the Midlands, the South West and Wales.

It can be fairly said that the gas industry has maintained in the year under review its outstanding reputation both in industrial relations and in the field of education and training.

Industrial problems settled without undue fuss

From Mr. F. C. HENFREY-SMITH, General Secretary, British Gas Staff Association :—

THE British Gas Staff Association holds the largest block of seats on the Staff Side of the National Joint Council and has therefore taken its full part in all national negotiations on behalf of the staff of the industry during 1958.

These negotiations included the settlement of a claim for a general increase in salaries as from September 1, and further improvement in the rates paid to junior staff. A claim for a revision of the metropolitan weighting, which had been raised from time to time since 1954, was referred to the Industrial Court for settlement. A new set of scales has been incorporated into the Staff Agreement to facilitate the transfer of such intermediate grades as the boards agree should be given staff status. The Staff Overtime Agreement has also been improved. At the end of the year, the staff side has again requested a review of the salary structure, to restore relativities between the scales, as it is claimed that the higher scales need upward revision.

The above brief summary of the negotiations at national level during the year indicates how, in the gas industry, industrial problems are settled effectively without much publicity or undue fuss. This is only possible because of the goodwill which, through the years, has been a feature of the staff negotiation machinery.

The B.G.S.A. supported vigorously the petition organised by the 'GAS JOURNAL,' urging the Chancellor of the Exchequer to remove the imposition of hire purchase control and purchase tax from gas-fired domestic space-heating appliances. The Association had, on several occasions previously made its own representations to the Government on this matter and it is therefore gratified that purchase tax anomalies have been corrected and that the removal of hire purchase controls has enabled the industry to sell in recent months even beyond its immediate capacity to supply and fit the appliances.

The present buying spree will undoubtedly ease off ere long and then will follow a harder fight to obtain an increasing use of gas and gas appliances against intense competition. The Association has called for a further

B.G.S.A.

investigation of domestic tariffs, with a view to the national introduction of an attractive two-part or other suitable form of charging, as will encourage generally the use of more gas and will enable a strong selling policy to be pursued.

As we enter 1959, all concerned with the gas industry look forward confidently to a virtually new industry arising from the tremendous developments in production techniques. But no-one must relax, with eyes on that horizon, for in 1959 the greatest possible efforts must be made by everyone to extend the use of gas in all fields. If all do that, it will indeed be a happy and prosperous New Year.

'Vital and inescapable part' of joint negotiating machinery

Gas Officers Guild

From Mr. J. R. W. ALEXANDER, C.B.E., Executive Chairman, Gas Officers Guild :—

JOINT negotiation of the salaries and conditions of employment of Officers and staffs was continued by the Gas Officers Guild as one of the constituent organisations of the Senior Gas Officers Joint Council and of the National Joint Council for Gas Staffs. The annual salaries of officers were increased by £40 to £80 from November 1, 1958, and, after prolonged negotiations, London weighting for officers was introduced into the National Salaries Table for Senior Gas Officers from July 1, 1958, thus affording annual additions of £50, £55, or £60 to the salaries of officers whose principal places of employment are within the metropolitan area.

The annual salaries of staffs were increased from £8 to £36 from September 1, 1958, from which date the London weighting for staffs was raised from £30 to £35 or £40 for those above APT Grade 7. Intermediate Grade salaries were raised by £20 or £24 from August 17, the Gas Manual Workers Pensions Schemes were extended to them and their holiday entitlements were improved (June 1). The overtime cash bonus of Staffs and Intermediate Grades was also improved (February 1).

These 1958 salary increases for officers and staffs represent rises of from 3% to 4% and are equivalent to four-fifths of the amounts of the 1957 settlements; they compare with the arbitral award of four-fifths of the increase claimed by manual workers, whose wages were thus increased by 2d. per hour from August 1, 1958.

Prejudice negotiations

The salaries, weighting and other awards secured during the year again demonstrate the vital and inescapable part which the joint negotiating machinery plays in the determination of the terms and conditions of employment of all persons serving the gas industry. The settlements focus attention upon the undesirability of some officers failing to join the Guild, or other appropriate organisation, and of officers in certain salary groups being excluded by ballot from the machinery. Such limitations prejudice negotiations and may result in certain officers receiving benefits secured by organisations for their members and by machinery which such officers do not help to maintain.

The time has come for those who by ballot have excluded themselves and (often by a bare majority) their colleagues from the machinery, to reconsider their position in their own and the general interest.

While the year was characterised by close co-operation between employers and employees in the successful and amicable negotiations of salary increases to offset the rise in the cost of living and other factors, it unfortunately remains the case that the general level of officers' salaries remains low overall when compared with the remuneration of officers in other industries and services. This intractable problem continued to receive the close attention of the Guild, not least because inadequate reward is prejudicial to the recruitment of properly qualified and the best personnel. The Minister recognised this when making substantial increases in the remuneration of persons appointed by him to the Gas Council and the area boards.

The activity of the Guild in matters relating to pensions and compensation continued to be reinforced by the work of the Joint Compensation Committee and the Joint Pensions Committee, which are representative of the Senior Gas Officers Joint Council (Officers Side) and the National Joint Council for Gas Staffs (Staffs Side). The Executive Chairman of the Guild continued as Chairman of these Committees and of the Officers Side and he remains Vice-Chairman of the Senior Gas Officers Joint Council.

Gives advice

The Joint Compensation Committee considers and makes recommendations and gives advice on issues relating to redundancy, transfer, loss and compensation entitlement affecting members of the organisations represented on the Officers Side and on the Staffs Side. Of particular concern has been the prolonged negotiations with the Employers Sides to secure an agreement to provide for compensation for the loss of employment, or the loss or diminution of emoluments, arising from redundancy, transfer or reorganisation occurring after April 30, 1959, when the Compensation Regulations will expire in respect of redundancy or loss arising from nationalisation and occurring after that date. The Joint Pensions Committee considers and makes recommendations and gives

Pictured at a meeting of the Gas Council—S.B.G.I. Joint Consultative Committee at Murdoch House are Mr. F. P. S. Stammers, Past Chairman of the Society of British Gas Industries, in the Chair; seated on his left, Mr. S. G. Aberdein, Chairman, Commercial Managers' Committee and Joint Chairman of the Joint Consultative Committee; on his right, Mrs. Eileen Murphy, Secretary to the Committee, and Miss E. Mann. Standing, left to right, are Mr. R. J. Gregg, Publicity Manager, the Gas Council; Mr. M. W. Burt, Director and Secretary, S.B.G.I.; Mr. L. W. Andrew, Director, Watson House; Mr. N. Hudson, Member, Commercial Managers' Committee; Mr. V. W. Stanton, Member, Commercial Managers' Committee; Mr. A. F. Oatley, Chairman, S.B.G.I., Section 6; Mr. J. W. Rodgers, Member, Commercial Managers' Committee; and Mr. P. D. M. Aird, Chairman, S.B.G.I., Section 16.

advice on matters relating to the pension entitlement of members of the organisations, with particular reference to the Gas Pensions Schemes of the Gas Council and the area gas boards.

A memorandum on 'Customary Obligation Pensions' and one on 'Compensation on Redundancy' were sent to all members in January, 1958. These have materially assisted members in handling their affairs and taking full advantages of the resources and experience of the Guild. It has been found necessary to take some disputes to the appropriate tribunals or to the courts.

Individual difficulties

Members continued to refer their individual difficulties to the Guild and its branches for advice or negotiation. These broadly relate to the terms and conditions of employment, especially the grouping of officers under the National Salaries Table, holiday entitlement, car allowances, transfer expenses and subsistence allowances, pension entitlement, redundancy, loss of employment or emoluments and transfer and compensation therefore, taxation and other personal problems.

Many members dissatisfied with their salaries or conditions have—under Guild advice or as a result of its representations—secured improvement, while a number of appeals to the tribunals against grouping or grading have been heard or are pending.

Members continued to take advantage of the insurance advantages which derive from the Private Patients Plan and the Group Accident Scheme of the Guild. Under the Plan, members, their wives and dependents secure substantial payments to offset the cost of surgical, nursing and hospital fees and the like, while under the Scheme members and their wives insure against personal accidents causing bodily injury and resulting in death or permanent total disablement. Extended benefits were introduced without additional premiums.

General meetings of the Guild were held in London on May 13 and November 18, at which the Chairman and Executive Chairman addressed the members and useful discussions took place upon the affairs of the Guild and of the industry in their impact upon the services rendered by officers and staffs. At the latter meeting the annual report and accounts were presented and it was noted that the Guild was in a satisfactory financial position. Guild branches, each covering the territory of an area gas board, continued to function and permitted discussion of local as well as national affairs and placed advisory services at the disposal of members additional to those afforded by headquarters.

In negotiating and consultative matters, area joint committees of the Senior Gas Officers Joint Council and area joint councils of the National Joint Council for Gas Staffs, continued to discharge their important responsibilities. The North Eastern Area Joint Council described negotiations with unorganised employees as impracticable and informed staffs that it was in their best interests that each 'should be a member of a trade union which shares with the gas board the responsibility for negotiation and consultation in accordance with the functions of the joint council,' the work of which 'as a means for the just and amicable settlement of salaries, conditions of service and matters in dispute, can best be maintained by the full support both of gas boards and trade unions.' The services of the Guild during 1958 showed not only a substantial measure of success, but demonstrated its ability to play a responsible part in promoting the interests of its members and, at the same time, of contributing towards the maintenance of the prosperity of the industry during the second decade of nationalisation about to commence.

During the year, Mr. S. H. Stokes (Scunthorpe, East Midlands) succeeded Mr. E. O. Rose (Tottenham, Eastern) as Chairman of the Gas Officers Guild and Mr. John W. Townsend (Tunbridge Wells, South Eastern) was elected Vice-Chairman. Mr. Rose replaced Mr. J. F. Rust (Newport, Wales) as immediate Past-Chairman. A number of advantageous changes were made in the organisation, administration and finance of the Guild, consequent upon the transfer of its headquarters from Ashtead to London on October 1, 1957. Membership was maintained. Increased rates of subscriptions became operative from April 1, 1958, the annual amounts now being two, three, or four guineas.

Solid past achievement—and hopes for the future

From G. W. PHILLIPS, Organising Officer for Gas Staffs—National and Local Government Officers Association :—

I AM grateful to the 'GAS JOURNAL' for giving me, every year, this opportunity of sending New Year greetings to its members.

At such a time, it is usual—and natural—to look back on the solid achievements of the past, and forward hopefully to the promise of the future.

That future, we have been led to believe, is to be bright indeed. It is, we are told, a challenge to us all, and we must be ready to review our fixed ideas in meeting it. And, of course, we all recognise that everyone—from the most newly recruited junior to the Chairman of the Gas Council—must be willing to play his or her part in making the industry into an even greater instrument for the public good than it has been in its long and proud history. All must be partners in a great enterprise.

Meanwhile, we are in a period of transition. Changes are occurring on every hand. And change brings its victims.

Thanks to the consultations that have taken place between the trade unions and the area boards, the victims have been fewer than might have been feared. All the same, there are those with years of faithful service who are no longer required in the changing scheme of things. Very often, they have contributed generously to the past successes that have paved our own way forward.

They must not now be discarded without a share of the fruits of their efforts. The Gas (Staff Compensation) Regulations, 1949, will expire in a few short months. An agreement to replace them is now being discussed. It is the duty of all concerned to see that this new agreement, when it is concluded, is worthy of the gas industry.

To all gas officers, staffs, and other readers of the 'GAS JOURNAL,' I send good wishes for a happy and prosperous new year.

NALGO

Bottled gas for Aran Islands

The Government of the Irish Republic has introduced a scheme whereby households on the Aran Islands which lie 30 miles in the Atlantic Ocean off the coast of Galway will have bottled gas equipment installed. The Aran Islands have always suffered from lack of fuel. The islands have always depended on imported supplies of oil and peat, but in rough weather supplies have often been held up.

1956 Act provisions came into full operation during the year

From ARNOLD MARSH, O.B.E., Director and Secretary, National Society for Clean Air :—

THIS year has been one of unusual importance in the campaign for clean air. Primarily this is because the year saw the completion of the process of bringing into full operation the provisions of the Clean Air Act of 1956. Various sections came into force at the beginning of 1957, including the important provisions for dealing with domestic smoke by the establishment of smoke control areas.

High tide

It was not until June, 1958, that the period of grace extended to industry came to an end, and the controls relating to dark smoke, new installations, and grit and dust emissions, became effective. This 'second appointed day' was accompanied, rather unexpectedly, by a burst of publicity and interest greater than at any previous stage—even including the London smog of 1952, or its sequel, the Beaver Committee. This high tide of interest is now tending to recede, or to be overlaid by the coal surplus problem, so that the time may be coming for new efforts to be made to ensure that clean air is kept well to the fore.

New evidence supporting the clean air case continues to be forthcoming, and although the long period of foggy weather during the latter part of 1958 did not lead to the development of serious smog, it served to remind the public and the Press of the ever-present possibility of smog. Relatively little notice, however, has been given to the reports published during the year on the effects of smog conditions in London in December, 1957, which directly caused 300 deaths (or 400 if the deaths resulting from the Lewisham train disaster are included).

Although the Clean Air Act is concerned only with smoke and grit or dust from industrial and domestic fuel-burning processes, public opinion has grown considerably about other forms of pollution. The Windscale incident resulted in much attention being given to the potential hazards from airborne radioactive material from nuclear energy installations, which is an industrial problem quite distinct from the special case of fall-out from test explosions. More immediate than this, and giving rise to much more public complaint, is the pollution caused by road vehicles. This is chiefly directed against the visible smoke and fumes from diesel-driven vehicles, although in fact there may be a greater menace from the largely unseen gases and vapours from petrol engines.

The new powers for the control or prevention of dark smoke have been available to the local authorities for only six months, so that it is rather too early to judge how effective they will prove to be. So far, however, the signs are good, and there have been few instances, if any, of real difficulty. There has been only a handful of prosecutions to date, and although this might be thought to be a sign of indifference or timidity on the part of the authorities, it is more likely to be due to a general recognition of the need to regard the Act as a persuasive rather than a punitive measure, having recourse to the courts only when all else fails.

Prior approval of new industrial installations, though not obligatory, is being asked for in many cases, and

Clean air

this, with the requirement that all new installations must in practice be smokeless, will lead to the virtual ending of new sources of smoke and grit. The more 'difficult' industrial processes, including gas production and electricity generation, are now controlled, through another section of the Act, by the Alkali Inspectors, the number of whom is being increased. Much attention is being given to the provision that enables the local authority to reject the plans for new premises if they include chimneys considered to be of insufficient height.

Two years

On the domestic side, the smoke control area programme has now had two years to get under way. A smoke control area may be the same as one of the earlier smokeless zones (of which 42 had been set up before the new Act was passed, or a zone which is not wholly smokeless because of permitted exemptions. The position at the end of November, 1958, for England and Wales was that there were 28 smoke control areas in actual operation, 27 Orders confirmed by the Minister for early establishment, 40 draft Orders submitted for confirmation, and 110 preliminary proposals notified. Thus, with the original smokeless zones there were 240 areas throughout the country either smokeless or in process of becoming so.

In Scotland a later start has been made with one smokeless zone, two control area Orders confirmed, one submitted, and five proposals notified to the Secretary of State. (Incidentally, the dark smoke and other industrial provisions of the Act are due to come into force six months after England and Wales—on January 1, 1959.)

'Not unsatisfactory'

As far as numbers of areas are concerned these figures are not an unsatisfactory beginning to the programme proposed by the Beaver Committee, which was that within ten to fifteen years' time all the 'black areas' of the country could be made smokeless, which would mean the abolition of 80% of the nation's smoke. This requiries the creation of smoke control areas at an average rate of 500,000 acres a year, and when we look at the totals to date for either acreage of the number of premises involved it will be seen that they are still extremely small. The smokeless zones cover 3,400 acres, and the 18 smoke control areas in being a mere 2,658 acres. Even if allowances are made for a slow and cautious beginning to an operation that is still in its early stages, it is apparent that much more enterprise and boldness will have to be shown if the Beaver target is to be reached in the time proposed. More, many more, schemes are needed of the size recently proposed in Manchester—over an area of five square miles, with 18,000 premises, and conversion costs estimated at £350,000.

In terms of fuel, after allowing for some turnover to gas, electricity and oil in the smoke control areas, the Beaver programme would call for over a million more tons of solid smokeless fuel to be made available *each* year. Even if new processes for the production of smokeless fuel are developed in time it is clear that, again in the stipulated period, the bulk of

it must come from existing plant, mostly as coke. There may be enough, or for the moment more than enough, smokeless fuel available for the present limited demand, and the question is whether production can be expanded at the desired rate? This is perhaps the most important factor that will determine whether the Beaver time-table will succeed. There is not space in this short survey to discuss the other factors—including the persistent question of how to overcome the various popular prejudices and fallacies that exist about the price value and safety of coke.

Welcome interest

Reference to this leads to mention of the continuing need for publicity and education over the whole field of clean air. Obviously most of this must be directed to the general public, especially where smoke control areas are projected, but it should be stressed that it is also desirable among many of the local authorities and in other opinion-leading groups and sections. The Clean Air Council, the official Government advisory body, is no doubt doing good work in private, but it is not seeking publicity either for itself or—directly—for clean air. Perhaps its influence is seen in the increased and very welcome interest in the problem now being shown by Government departments.

Design competition

The body mainly responsible for keeping the subject to the fore in the eyes of the public is the National Society for Clean Air, despite the very limited amount of financial support it enjoys. For the Society, 1958 was a full and successful year, starting with its change of name and new status as an incorporated body. Its annual conference in October was the largest and one of the most useful ever held. It has just concluded in conjunction with the *News Chronicle* a successful poster design competition, which has given invaluable publicity from a new angle, and it is now preparing to celebrate its Diamond Jubilee next year with an International Clean Air Conference and Exhibition in London.

The clean air campaign is of course being helped along in many ways by the industries without whose products progress would not be possible. This might be regarded as mere self-interest, but it does include a sense of social responsibility, and, to the writer at least, this has been very evident in the gas industry, and is warmly appreciated.

Diary

January 5.—NORTH EASTERN SECTION, INSTITUTE OF FUEL: Newcastle-on-Tyne. Ladies' Night. Speaker: J. S. Hales. 6.30 p.m.

January 7.—INCORPORATED PLANT ENGINEERS: Bell Hotel, Leicester. 'Application of Thermostatic Controls,' by J. S. Smith, the Rheostatic Co. Ltd. 7 p.m.

January 7.—COMBUSTION ENGINEERING ASSOCIATION, SOUTHERN REGION: St. Ermin's Hotel, Westminster. Papers on 'Case Histories of Fuel Savings,' by H. A. Haines, and 'Advances in Process Control,' by V. O. E. Bryant. 10.30 a.m.

January 8.—INCORPORATED PLANT ENGINEERS: Scottish Building Centre, Glasgow. 'Safety in the Uses of Industrial Gases and Equipment,' by T. Reeks, British Oxygen Gases Ltd. 7.15 p.m.

January 8.—EAST MIDLANDS G.C.C.: Smithy Row, Nottingham Council meeting at 11.30 a.m.

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Particularly eventful year for the Institution of Gas Engineers

IN carrying out its professional, technical and educational functions, the Institution of Gas Engineers has to rely upon the collaboration and co-operation of the Gas Council, the area gas boards, and member firms of the Society of Gas Industries and numerous individuals. This collaboration has been fully available throughout a very active year and it is desired to record the gratitude of the Institution to all of the organisations who have assisted in its work and to the many people who have served on the Council or Committees of the Institution or who have represented the Institution on committees or at conferences of other institutions and kindred organisations.

There was a slight increase in the total membership of the Institution during the year from 3,460 to 3,500. The death of 21 members is reported with regret. Included in these were two honorary members of the Institution, Sir George Evetts, O.B.E., and Mr. R. J. Rogers, both of whom had distinguished careers in the gas industry. Their service to the Institution over a very long period is recalled with gratitude.

Six members of the Institution were included in the New Year or Birthday Honours Lists for 1958. There were: Dr. R. Lessing (C.B.E.), Dr. F. J. Dent (O.B.E.), Mr. F. T. Brookes (M.B.E.), Mr. W. T. Hird (M.B.E.), Mr. A. G. Palmer (M.B.E.), Mr. W. T. Thomas (B.E.M.).

Successful

The seven district sections and the affiliated Irish Gas Association and Scottish Association of Gas Managers have all had an active and successful year, as have the Junior Gas Associations which are affiliated with the Institution through the British Junior Gas Associations' Joint Council.

Accounts of the meetings of their organisations have appeared in the technical Press throughout the year and their programmes were designed to cover a very wide range of technical interest.

The 96th Annual General Meeting of the Institution held at the Royal Festival Hall from May 13-16, 1958, under the Presidency of Dr. J. Burns, G.M., was distinguished first, by a remarkably stimulating Presidential Address in which considerable interest has been shown in spheres well beyond those normally associated with the Institution's activities, and secondly, by the presentation of the Birmingham Medal to Sir Harold Hartley, C.B.E., M.C., an honorary member of the Institution. Sir Harold Hartley has been closely associated with the science and technology of fuels for many years and among his many distinguished appointments may be mentioned his Chairmanship of the Fuel Research Board for 15 years and his Presidency of the World Power Conference. He has been actively connected with the gas industry since 1922 and has made many notable contributions in applying his scientific knowledge to the problems associated with the purification of gas. It is fitting that the Institution should acknowledge its indebtedness and that of the gas industry generally to Sir Harold by bestowing upon him the Birmingham Medal, which is the highest honour it has.

A number of technical papers relating to the production, distribution and utilisation of gas were presented and discussed.

Works visits arranged including the Beckton and Romford works of the North Thames Gas Board, the Leatherhead Station of the British Coal Utilisation Research Association, the Luton works of George Kent Ltd., Gothic Works, Edmonton, of Glover & Main Ltd., the Coryton refinery of the Mobil Oil Company Ltd., the Osram lamp and glass works of the General Electric Co., Ltd., Wembley.

For the ladies a dress show was arranged in collaboration with Mar-Marshall & Snelgrove at the Monico Restaurant and a visit was made to Hampton Court Palace.

The reception and dance was held in the Great Room at Grosvenor House and the President's Luncheon was held at the Savoy Hotel. The principal guests were Sir George Thomson, Master, Corpus Christi College, Cambridge, and Sir Harold Hartley, as President of the Society of Instrument Technology.

The President, Mr. E. M. Edwards.

Awards

Besides the Birmingham Medal the following awards were made:

The Institution Gold Medal for 1957 was awarded to Mr. E. R. Ward, for a paper on 'The Use of Light Petroleum Distillate for Gas Making,' read at the 23rd Autumn Research Meeting on November 20, 1957.

The H. E. Jones London Medal for 1957 was awarded to Dr. R. S. Andrews, C.M.G., for a paper on 'Pressure Gasification of Brown Coal at Morwell, Australia,' read at the 94th A.G.M. on May 14, 1957.

The Institution Silver Medal for 1957 was awarded to Mr. E. Spivey, and Mr. C. H. Williamson, for their paper on 'The Production of Water Gas at Beckton,' read at a meeting of the London and Southern Section on January 5, 1957.

The Institution Bronze Medal for 1957 was awarded to Mr. J. R. Kilvert, for a paper on 'Operating Results at the New Swan Village Gasworks,' read at a meeting of the Midland Junior Gas Association on December 17, 1957.

Duplicate awards were made for the William Dieterichs Memorial Prize for 1957, to Mr. A. H. Bird, M.B.E., for a paper on 'The Effects of Variations in the Combustion Characteristics of Town Gas on Certain Industrial Processes,' read at a meeting of the Eastern Section, December 4, 1957, and to Mr. H. R. Cooke for a paper on 'Industrial Application of Air Heated by Gas,' read at a meeting

of the London and Southern Junior Gas Association, April 5, 1957.

The 24th Autumn Research Meeting was held at Church House, Westminster, London, on November 18 and 19, under the chairmanship of the President, Mr. E. M. Edwards. The technical and educational reports of the Institution and research reports of the Gas Council, together with technical and research papers, were presented and discussed. The programme was extremely full, there being 17 reports and papers which were presented and discussed and three papers which were presented without discussion.

In order to encompass the programme within two days, it was necessary for some parallel sessions to be held; even so, it was impossible to allow the full time for discussion which many of the excellent reports and papers merited and it may be desirable to consider in the near future an extension of the length of the meeting.

At the parallel sessions, while the President took the chair in the Assembly Hall, the Senior Vice-President, Mr. D. D. Melvin, presided in the Hoare Memorial Hall.

The reports of the Joint Refractories Research Committee, and the Gas Education and Chairmen's Technical Committees of the Institution formed the programme for the meeting on the morning of November 18. In the afternoon three papers concerning the removal of hydrogen sulphide from gas were presented and discussed, while at the same time in another hall, papers dealing with industrial applications of gas and research relating thereto were considered. On the morning of November 19, papers dealing with a slagging pressure gasifier, experiences with refinery gas and hydrogenation of light distillate were presented and discussed. In another hall at the same time, the papers were concerned with a survey of effluents produced in the gas and coking industries, experiments with shared and individual flues for gas appliances and chromatographic gas analysis.

Scholars

On the afternoon of November 19, Mr. W. K. Hutchison, C.B.E., gave a brief resumé of the work of the Gas Council Research Scholars for 1958. Two papers relating to the measurement of gas stream temperatures and to energy transfer from flames were presented without discussion and a third paper entitled 'The Odour and Odorisation of Gas' was presented and discussed. Dr. A. T. Green, C.B.E., Director of the British Ceramic Research Association, who will shortly be retiring, gave a most interesting paper on 'Refractories Research and the Gas Industry,' in which he reviewed the research work which has been undertaken on refractory materials by and on behalf of the gas industry for the last 50 years.

The opportunity was taken by the President of presenting to Dr. Green an album containing the signatures of the members of the Council and of those who have worked with him on the various Joint Refractory Research Committees.

An interesting feature of the 24th Autumn Research Meeting was the presence of a large representation from overseas gas associations. It had been arranged that meetings of two of the Standing Committees of the International Gas Union should be held on November 20 and 21 at the Headquarters of the Institution. Many of the members of these committees were able also to attend the Autumn Research Meeting. Among them, the Institution was particularly pleased to welcome Mr. R. H. Touwaide, General Secretary of the International Gas Union, who, in May, 1957, was elected an honorary member of the Institution.

In addition to the members of the International Committees, the Institution was priviliged to have a visit from Mr. M. V. Sidorenko, Deputy Director, Central Department for the Gas Industry attached to the Council of Ministers of the U.S.S.R., who was accompanied by Mr. Y. P. Blinov (Moscow) as interpreter. Mr. Blinov presented a short summary of a paper prepared by Mr. Sidorenko dealing with the development of the gas industry in the U.S.S.R. The full paper is shortly to be published by the Institution.

The President presented the following medal and prizes: Diploma in Gas Engineering (Supply) to Herbert Grey Willes (London); Charles Hunt Memorial Medal, 1958, Associate Membership Examination (Gas Engineering, Manufacture) to John Stanley Goode (Birmingham); James Archibald Maclay Memorial Prizes, 1958, in Gas Technology (Supply) to Frederick Charles Carter (London), and in Gas Salesmanship and Consumer Service to Francis McDonagh (Blantyre).

The Autumn Research Luncheon was held at the Savoy Hotel where the principal guest was Sir Harry Melville, Secretary of the Department of Scientific and Industrial Research.

The Institution, which was a founder member of the International Gas Union, has continued throughout the year to collaborate closely in all its activities. The Union has a number of technical Committees that have been appointed by its Council to investigate specific problems. These are concerned with standard requirements for the approval or stamping of domestic gas appliances, interchangeability of gases, new gas distribution techniques, safety conditions in domestic, commercial and industrial gas installations, statistics and the preparation of a multilingual vocabulary of gas industry terms.

The Institution is represented on all these international Committees, and, in addition, Mr. W. K. Hutchison, C.B.E. (Past President), is Chairman of the Committee for the Study of New Gas Distribution Techniques, and Mr. G. E. Currier, O.B.E. (Honorary Secretary and Past President), of the Committee for the Study of Safety Conditions in Domestic, Commercial and Industrial Gas Installations. The Assistant Secretary (Mr. A. G. Higgins) is Secretary to both these Committees.

Rome

The 7th International Gas Conference was held in Rome on September 25-28, 1958, and was attended by a delegation of 117 from the British gas industry, under the leadership of the President of the Institution, Mr. E. M. Edwards. At this conference, the following three national reports, prepared from information collected from the various member countries and collated by small panels of experts appointed by the Institution's Council, were presented and discussed: 'Developments in Methods of Gas Measurement, Particularly of Large Volumes of Gas at High Pressure,' 'Survey of the Development of Use of Petroleum Products in Town Gas Manufacture,' and 'Investigation on Unconventional Flues.' These reports were presented by Mr. F. L. Atkin, Mr. E. M. Edwards and Mr. L. W. Andrew, respectively. Further, Mr. W. K. Hutchison, C.B.E., presented the first report of the Committee of which he is Chairman.

The following three papers were presented by members of the Institution: 'The Application of Chemical Engineering Principles to the Cooling and Purification of Manufactured Gas,' by G. Dougill and E. Spivey; 'Civil Engineering in the Gas Industry—Recent Developments,' by D. A. Andrews; and 'Principles of Instrumentation and Automatic Control on a New Gasworks,' by J. E. Davis and T. A. Lucas.

In addition to the above-mentioned British contributions, the Institution collaborated in the preparation of reports prepared and presented by the national associations of other member countries.

A joint meeting of members of the Coke Oven Managers' Association and the Institution of Gas Engineers

was held at the Institution of Civil Engineers, Westminster, London, under the chairmanship of Mr. E. M. Edwards, President of the Institution of Gas Engineers.

A joint paper given by two members of the staff of the Steel Company of Wales, Mr. J. T. Davies and Mr. H. J. Victory, and two members of the staff of the Wales Gas Board, Mr. W. F. Edwards and Mr. W. D. Rees, entitled 'Development and Co-ordination of an Integrated Iron and Steel Works and a Gas Grid Supply Station for the Utilisation of Coke Oven Gas' was presented and discussed.

At the bi-annual Public Works and Municipal Services Congress held at Olympia on November 10-14, 1958, a session was held under the ægis of the Institution of Gas Engineers. The chair was taken by the President, Mr. E. M. Edwards, and papers dealing with 'Heat Service by Gas in the Modern Dwelling' by Dr. F. J. Eaton and Mr. E. J. Harris, and 'Tar Roads for Modern Traffic' by Mr. J. R. Dewhurst, were presented and discussed.

The technical work of the Institution for the year is summarised in the 19th Report of the Chairmen's Technical Committee which was presented and discussed at the 24th Autumn Research Meeting.

Liaison with various Government departments and kindred organisations and institutions has been maintained throughout the year, and the Institution has appointed official delegations to attend conferences arranged by other professional organisations, including the Royal Society of Health, the Industrial Fuel Efficiency conference and exhibition and the National Society for Clean Air.

Liaison

The drafting panels of the Codes of Practice Sub-Committee have been active in revising the codes of practice which were published some ten years ago. The code for 'Gas Service Pipes' was published in a revised form towards the end of 1957, and several other revised codes will shortly be published. The liaison between the drafting panels and the professional architectural Institution which was instituted two years ago has been maintained throughout the year and is proving most valuable.

The Gas Distribution Committee has given considerable attention to the problems associated with the fracture of cast iron mains. Data relating to fractures which, with the co-operation of the area gas boards, have been collected since January 1, 1955, were submitted to a statistical appreciation in which the Committee was considerably assisted by Mr. B. G. H. Clegg, the Statistical Adviser of the Southern Gas Board. A report was submitted to the Gas Council as a result of this survey in which, inter alia, particular attention was paid to effective sealing of holes in walls or floors through which services of any kind enter premises. Experience has shown that one of the principal causes of accidents arising from escaping gas is the seepage of gas from outside to inside premises through holes in walls through which all types of services pass and which have been ineffectually sealed.

The Committee proposes, with the assistance of the area gas boards, to continue to collect information concerning broken mains, and has also asked the boards to collaborate further in collecting for a period of a year much fuller details of these fractures of mains or circumstances that lead to an incident involving fire, explosion or personal injury of a nature requiring medical attention.

In addition, the Committee has initiated discussions with the Meteorological Office of the Air Ministry in order to obtain information concerning ground temperatures, and with the Road Research Laboratory of the Department of Scientific and Industrial Research in regard to soil stresses.

The Cast Iron Pipes Liaison Committee, which comprises representatives of the Gas Distribution Committee and representatives of the Manufacturers, has under consideration the preparation of recommendations concerning the handling and transport of cast iron mains and also the development of improved designs of high pressure syphons.

A panel appointed by the Gas Distribution Committee to consider the external protection of steel pipes has continued its discussions throughout the year with the manufacturers of steel pipes, the makers of protective coatings of various kinds and the Coal Tar Research Association. Already the work of this panel had led to substantial improvement in the quality of wrappings supplied with steel service pipes and it is hoped that still better coatings will be developed as work proceeds.

Consideration is now being given by the Committee to the preparation of recommendations for the laying of gas service pipes and for the maintenance of gas governors used for distribution.

The Gasworks Effluents Committee of the Institution has maintained liaison with the Committees of the Gas Council concerned with legal and commercial aspects and with research matters connected with the disposal of effluents from gasworks. A matter of considerable consequence to the gas industry was the successful opposition by the West Midlands Gas Board, with the full support of the Gas Council and of Imperial Chemical Industries and the Federation of British Industries, to the Birmingham Corporation Bill which contained a clause that sought to impose charges (which could subsequently be varied) for the treatment of trade effluent discharged into the Corporation's rivers calculated by means of a formula depending upon the type of treatment it was necessary to apply to the effluent. Provision was also made for charges for the reception and conveyance of effluent as distinct from its treatment.

As a result of the opposition, the unsatisfactory formula for the calculation of charges for effluent treatment was deleted, there remaining only a right to make a simple charge for the cost of treatment and also for the reception and conveyance of effluent. Furthermore, a full right of appeal to the Minister of Housing and Local Government was secured, which it was considered would adequately protect the traders.

Safety

The Gasworks Safety Rules Committee has revised the Code of Practice for the Safe Design and Operation of Gas Boosting and Exhausting Plant and has enlarged the scope of its recommendations to cover the hazards peculiar to governor houses and meter houses. The revised code has been republished under the title 'Recommendations for the Safe Installation, Operation and Maintenance of Exhausters, Gas Pumping Plant, Governors and Meters.'

In view of the increasing use of light petroleum distillates in oil-gasification plants, the Committee has given considerable thought to the preparation of safety recommendations that should be applied having regard to the fact that the fire and explosion hazards on such plants are substantial. Throughout its deliberations, the Committee kept in close touch with the manufacturers of gasification plants, from whom many most useful suggestions were received. The Committee also consulted H.M. Chief Inspector of Factories and Chief Inspector, Explosives Branch, of the Home Office, both of whom approved and welcomed the Committee's recommendations, which have now been published as I.G.E. Safety Recommendation M9 ('Memorandum on Installations for the Use of Light Petroleum Distillates in Low-pressure Gasification Plants'). They were re-

produced as Supplement 2 to the 19th Report of the Chairmen's Technical Committee.

The *ad hoc* Committee on Electrical Bonding which was appointed by the Council on February 5, 1957, to consider the problems arising from the flowing of electric currents in gas installations and services consequent upon cathodic protection and the existence together of electrical and gas installations in domestic and other premises, has completed its task and has reported to the Council.

Fires

The Committee has accumulated a great amount of information concerning fires resulting from sparking between an electrical installation carrying faulty current and a gas pipe, and of causes of minor shocks received by gas personnel when severing a gas installation as, for example, by disconnecting a gas meter. Further, it has initiated a number of tests in properties of all kinds from which it has confirmed that however desirable the segregation of gas and electricity services might be, in practice it is rarely capable of being achieved. The Committee has accordingly recommended that it would be desirable to develop universally a practice of establishing a continuity bond wherever there is to be a severance made in a gas service pipe, gas installation pipe, a cathodically protected distribution system or a wrapped gas main. This should not normally be necessary in the case of unwrapped cast iron mains since alternative paths to earth for any electric current would usually be available.

Further, the Committee has recommended that steps be taken to encourage the development of the practice of bonding together the electricity, water and gas services in premises, whether or not such services are electrically continuous, but it emphasises the importance of ensuring that in all such cases the electricity supply is independently and effectively earthed.

The 35th Report of the Gas Education Committee, which was presented and discussed at the 24th Autumn Research Meeting, contains an account of the educational activities of the Institution.

A most successful short course for teachers in gas fitting was conducted at Dudley Training College, Worcestershire, from July 13 to 19, 1958, under the direction of Mr. F. Caunce.

Fifty teachers from all parts of the country attended the course, which was officially opened jointly by Mr. E. M. Edwards, President of the Institution and Mr. W. R. Branson, Deputy Chairman of the Board.

Sandwich courses in gas engineering have now become an established means of training gas engineers and all area gas boards are making use of them to train certain of their personnel. Sandwich courses in gas engineering are conducted at the Royal Technical College, Salford, the College of Technology, Birmingham, and the Westminster Technical College. In addition, a sandwich course in civil engineering, which provides in the final year for gas engineering, is conducted at Enfield Technical College.

At the Autumn Research Meeting, an account was given by Mr. J. A. Dyde of the work of the National Council for Technological Awards upon the Board of Studies in Engineering of which he represents the Institution of Gas Engineers. The award at present made by the Council is the Diploma of Technology, which is comparable in standard with an honours degree of a university and study for which is undertaken either by approved full-time or sandwich courses at certain approved technical colleges. Mr. Dyde suggested that the time had now arrived when the area gas boards and the Institution should give consideration to suggesting at least one course leading to the qualification. This will involve a complete reconsideration of the length, curriculum and conduct of one or more of the existing sandwich courses to meet the requirements of the National Council. This is a matter to which early consideration will be given.

Grants were made to two young engineers (Mr. A. R. Bovington and Mr. W. E. Dobson) from the Woodall-Duckham Educational Fund to enable each of them to attend two of the summer schools at the Institute of Gas Technology, Chicago, in June and July, 1958. Their gas boards, by supplementing their grants, enabled them to prolong their stay in the United States of America and to see something of the American gas industry.

These engineers are now throughout the winter season visiting the various Junior Gas Associations to tell them of their experiences. It is evident from the reports Mr. Bovington and Mr. Dobson have prepared and from the lectures they have already given, that these awards have been put to very good use.

Collaboration

The Institution was pleased to be invited by W. H. Allen, Sons & Co., Ltd., Bedford, to collaborate with area gas boards in selecting engineers to attend a course of four weeks' duration for gas engineers and water engineers at the works of the Company.

Mr. F. Brinsley, who, during the last four years has lectured on 'Flame' to several thousand young people in the provinces, gave this Christmas Lecture in London on January 2 at the Imperial College of Science and Technology. The application for tickets was higher than ever and although Mr. Brinsley kindly gave two repeat lectures several hundred young people had to be disappointed.

Mr. Brinsley also gave the lecture at the College of Technology, Birmingham, on January 10, under the aegis of the Midland Section of the Institution.

Mr. W. F. Thorne gave two lectures on 'Flame' on the morning and afternoon of January 2, and Mr. D. W. Kay gave the Murdoch Christmas Lecture at the University of Manchester on December 20, 1957. These lectures were given under the aegis of the London and Southern and the Manchester and District Sections of the Institution, respectively.

The London lecture for Christmas, 1958, will be on 'Harnessing the Flame,' by Mr. L. W. Andrew, at the Imperial College of Science and Technology, on January 2, 1959.

Mr. W. F. Thorne will give his lecture on 'Flame' at Poole and Mr. L. G. Townsend will lecture in the North West. Other Christmas Lectures are being considered by District Sections of the Institution.

As many more students are attending sandwich courses in gas engineering it was expected that the entries for the Institution's examinations should be fewer than last year. There were, in fact, 47 candidates for the main subect examinations, compared with 71 last year. The standard was in general comparable with that in previous years, but it was a disappointment that no candidate received a sufficient mark in either the October, 1957, or the April, 1958, examinations, to be considered for the award of the Charles Hunt Memorial Medal in Gas Engineering (Supply).

In the examination for the Certificates in Gas Salesmanship and Consumer Service examinations, the number of candidates rose from 81 to 123, the highest entry since the examination was initiated. While the general standard was slightly better, there being a smaller percentage of failures, there was also a smaller percentage of first-class passes, although one candidate obtained unusually high marks.

The encouraging feature of this year's examinations is that apart from the larger number of entries, candidates were drawn from every area gas board except one, and it is known that in the case of this board there will be a good entry next year.

New Plant in 1958

White Lund

brings nearer complete integration of the N.W.G.B. Northern Group.

★

Manvers Main

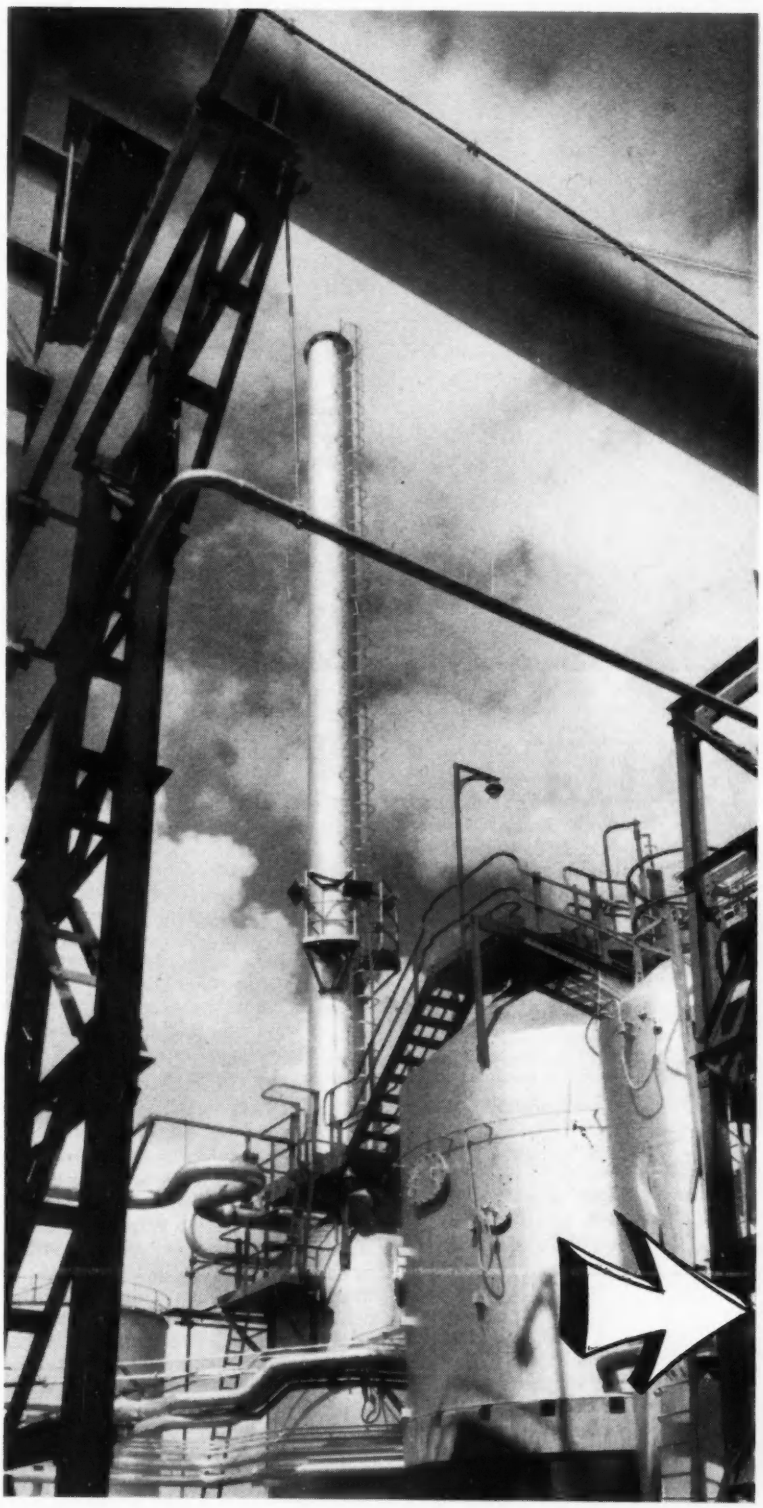
Gas supplies maintained as new plant replaces obsolete batteries.

★

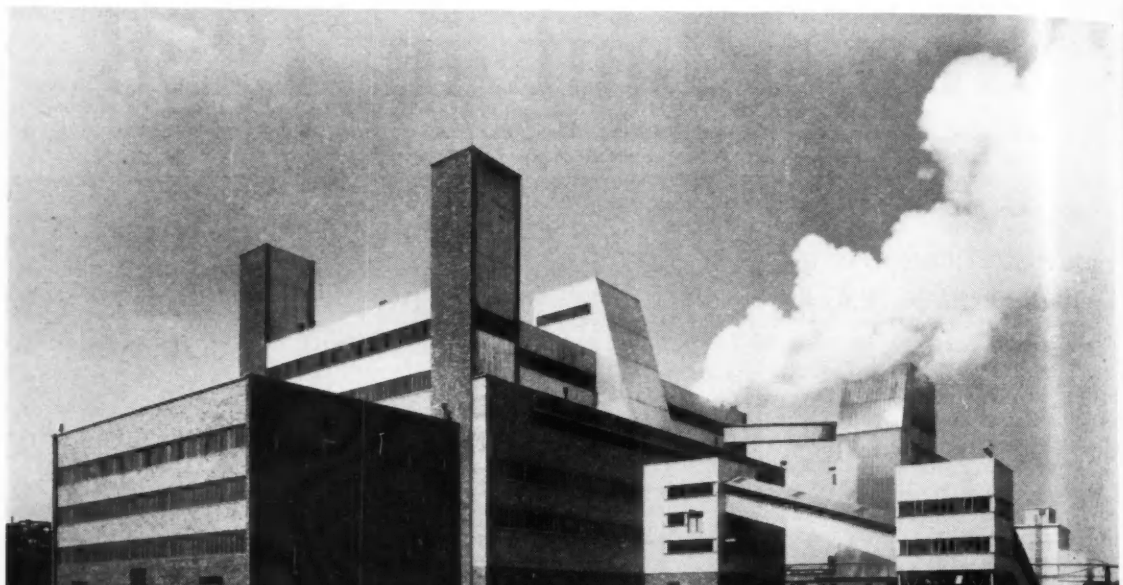
Provan

extensions prepare for importation of coke oven gas and methane.

★



Plant at Romford for the treatment of gases delivered by high pressure pipeline from the oil refinery at Shell Haven. The plant can deal also with imported methane after the methane has been converted at Canvey Island site from liquid to gaseous form.



WHITE LUND: *brings nearer complete integration of the N.W.G.B.'s Northern Group*

WHITE LUND works is the largest gas production plant in the North Western Gas Board's Northern Group which was formed by the amalgamation of the three groups constituted on nationalisation; Lancaster—Morecambe, Furness, and Kendal.

The site chosen for the new works had formed part of the national shell-filling factory built during World War I and destroyed by an explosion in 1917. Since then, it had lain derelict, and had had to be cleared of all old ruined buildings and foundations. The final site has an area of 24.9 acres.

Shunting operations

The railway sidings of 7.9 acres were laid out adjacent to the main works site parallel to the electrified railway line running between Lancaster and Heysham. On these sidings 50 full and 50 empty wagons can be accommodated with ample room for shunting operations.

The drainage of the main site is by covered water surface channels which transport all surface water to a specially designed flume consisting of four parallel channels leading into an 80,000 gal. reservoir. As the water enters the flume, its velocity is reduced to a constant flow speed, which allows it to be metered and as much as possible of the heavy grit contained in it to settle before entering the reservoir.

Coal is delivered from the works sidings, either to the stocking ground which will hold some 17,500 tons or to the coal tipplers. Wagons tip in a closed structure to prevent dust nuisance. The coal is crushed to a maximum of 1½ in. cube and then delivered by bucket elevators and belt conveyors to the overhead coal storage bunkers arranged above the benches. These bunkers have a capacity of 1,350 tons and are fed by shuttle conveyors.

The carbonising plant consists of three benches, each of three settings of fully recuperative Woodall-Duckham intermittent vertical chambers. Each setting, consisting of six chambers, is separated from its neighbour by an air cooled partition wall and can be operated as a separate unit, by the provision of its own step grate producer and counterflow recuperator. There are a total of 54 chambers. Provision has been made for the installation of a fourth bench at some future date so that eventually there will be two lines of two benches. The carbonising plant as it stands has a guaranteed throughput of 418.5 tons of washed Yorkshire singles per day and a gas production of 6.78 mill. cu.ft. per day at a calorific value of 475 B.t.u. per cu.ft., allowing for producer gas dilution and without benzole extraction. This is equivalent to a yield of 76.83 therms per ton.

In order to reduce the organic sulphur of the gas distributed in the district as much as possible, the maximum amount of oil washing for benzole is practised. At an extraction rate of 3 gal. per ton, the total possible

gas production will be reduced to 6.24 mill. cu.ft. per day. In actual practice the extraction rate is somewhat higher at 3.1 gal. per ton which reduces the organic sulphur content of the gas distributed in the district to 8.2 grains per 100 cu.ft.

The chamber house is a very attractively designed steel framed building, brick clad in two contrasting colours of Ravenhead rustic bricks, while the top part housing the coal and coke bunkers is clad in unpainted aluminium sheeting.

All conveyor gantries and the tippler house are similarly clad with aluminium sheets. The design of the chamber house was the result of close co-operation between the North Western Gas Board, the Local Planning Authority and the Fine Arts Commission.

Unaided discharge

The chambers are rectangular in plan and about 21½ ft. high, with a major axis of 10 ft., and a minor axis of 8½ in. at the top and 12½ in. at the bottom. The tapering width, increasing evenly from top to bottom, is to ensure unaided discharge of the coke when carbonisation is complete. Each chamber with a capacity of approximately 3¼ tons of coal, is charged and discharged at intervals of approximately 12 hours, giving a maximum daily capacity of 418.5 tons and can produce a maximum of 6.78 mill. cu.ft. of gas daily by dilution with producer gas. A special feature of the bracing of the settings is the use of water cooled tie rods through which water flows to the boiler feed water tank.

The recuperators, constructed on the counterflow system, are built in two halves, on either side of each producer. Dampers are provided for partially by-passing each recuperator in order to raise the temperature of the waste gases and increase the steam output of the waste heat boilers when required.

The gas diluent plant consists of three step grate producers with a total capacity of 1.695 mill. cu.ft. per day.

To maintain the correct proportioning of producer and coal gases an electric motor-operated butterfly valve is provided in the clean producer gas main. The motor is remote controlled by push buttons installed in the calorimeter room. An Askania regulator controls the pressure of the steam for the producer air inlet venturis. This regulator is controlled by the pressure of the gas in the hot producer gas main.

Each bench is provided with its own retort house governor with by-pass, and consists of a butterfly valve operated by a linkage through a Kent Mark 4 power cylinder. This power cylinder is designed to operate in the Kent Mark 20 compressed air-powered control system incorporated in the Kent furnace pressure controller. A small electric compressor and reservoir tank supply the compressed air for its operation.

The waste heat boiler installation included in the chamber house consists of three Woodall-Duckham horizontal, induced draught, fire tube, boilers designed to raise 7,700 lb. of steam per hour at 190 lb. per sq. in. Each can deal with the gases from two benches, leaving the third as a standby to the other two.

High pressure superheaters arranged in the inlet flues of the boilers raise the steam temperature to 550°F.

Throughout the chamber house, the standard of instrumentation is very high. Either indicators or recorders as circumstances demand have been installed at important points.

Throughout the chamber house, too, Tannoy loud speakers have been installed by means of which the top and bottom men may communicate with each other and the foreman may be informed of any emergency. The foreman can also communicate with the machine house attendant.

The hot coke from chambers leaves the chamber house in the skip or coke car and is taken to the quenching towers.

The tipping of the coke car is hydraulically operated by attaching to it a flexible hose from a stand pipe connected to a cabinet on the coke wharf top, containing an oil reservoir, and an electrically driven oil pump.

After quenching the coke is elevated by a skip hoist to the grading plant, where it is stored in the sized coke bunkers with a capacity of 500 tons. In addition there is a coke stocking ground capable of holding 17,000 tons.

The gas passes in a single stream from the chamber house to the ancillary plant of 235,000 cu.ft. per hour capacity. The detarrers work to an efficiency between 97 and 99% according to the conditions of working and the ammonia washers of the multifilm type can reduce the ammonia content of the gas to 2 grains per 100 cu.ft. at a washing temperature of 65°F.

After leaving the ammonia washers, the gas flows through the oxide purifiers. Of welded mild steel construction, they are of the tray type built to the Board's specification and designed as a four-box set capable of extension to five boxes. The air supply to the purifiers is supplied by two Waller-Roots blowers in the machine house. With a capacity of 12,000 cu.ft. per hour against a pressure of 60 in. w.g. they are driven by Braumer vee belt from the exhauster engine shaft.

From the purifiers the gas enters the benzole washer where washing is accomplished by one large unit with a capacity of 6.14 mill. cu.ft. per day (255,000 cu.ft. per hour) and not by two in series.

A calorimeter house has been provided at a central point between the chamber house and the purifiers near to the machine room. Here are installed a Fairweather recording calorimeter, a Boys calorimeter for daily testing and five Sigma recorders for the diluted chamber house gas and the carburetted water gas streams and for the main gas stream. Readings from three of these recorders, including the Fairweather, are telemetered to a panel in the instrument room which forms part of the machine house. The gasholder with its capacity of 750,000 cu.ft. acts as an intermediate storage for the boosters and the compressors which despatch gas to outer holder capacity in Lancaster and Morecambe (Westgate) and supply gas to the grid system beyond Carnforth.

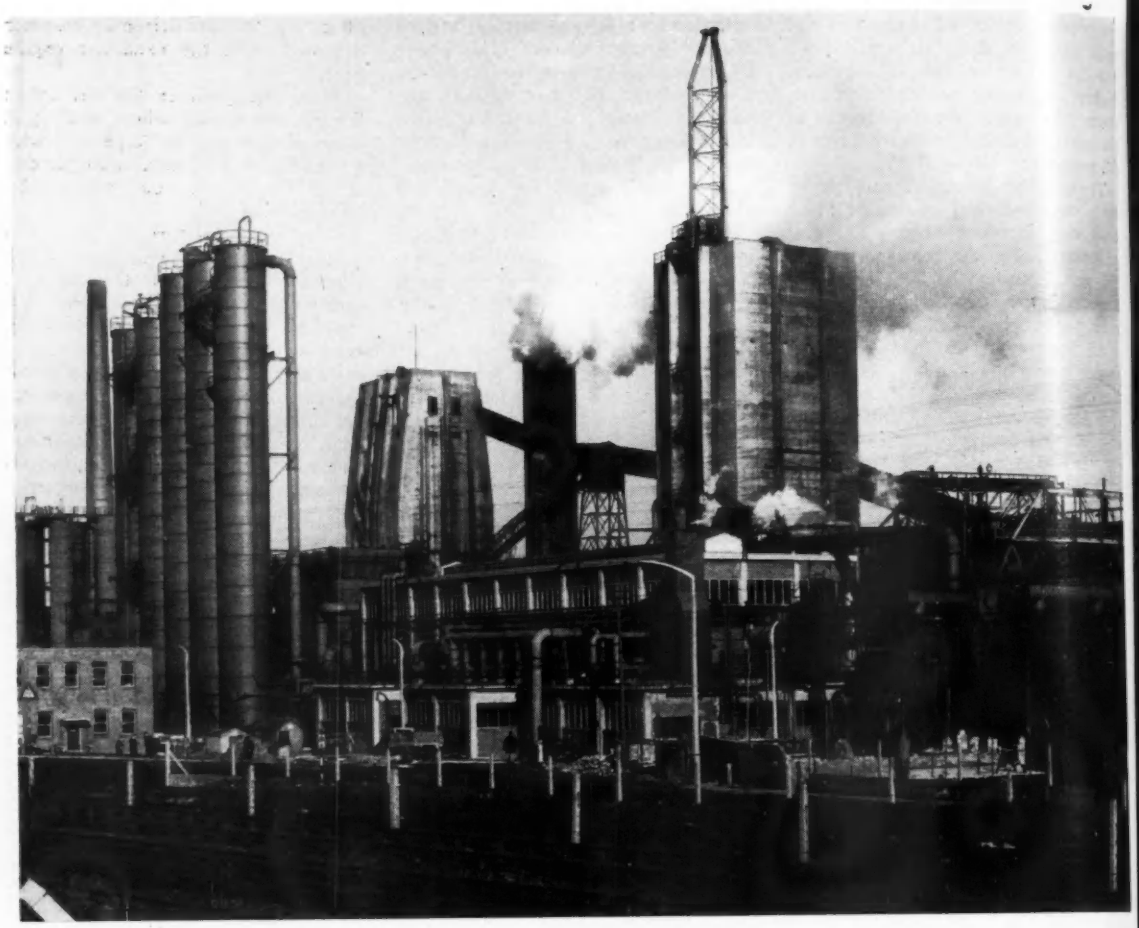
For this arrangement to be effective, the gas supply to these holders is boosted by two Bryan Donkin Rateau turbine boosters, each of 300,000 cu.ft. per hour, the one steam driven and the other diesel driven, each acting as a standby to the other.

Gas is supplied to the more distant undertakings at a pressure of 11 lb. per sq. in. by one of two Bryan Donkin compressors, each with a capacity of 80,000 cu.ft. per hour. As with the boosters there is a choice of steam or diesel drives, and each machine is standby to the other.

Relief gasholder

The carburetted water gas plant for which the White Lund site was originally chosen by the joint committee of the Lancaster and Morecambe Corporations is situated on the north east corner of the present site. It is complete with its own ancillary plant and relief gas holder of 250,000 cu.ft. capacity.

The recovery of crude benzole from the rich benzolised wash oil leaving the benzole scrubbers is carried out in a Holmes benzole recovery plant. This can strip 7,500 gal. per hour of benzolised oil and is designed to recover 85% of the available benzole in the gas as determined by the St. Claire Deville test, and 85% of the carbon disulphide at a maximum throughput of 6.14 mill. cu.ft. of gas per day at a maximum gas washing temperature of 70°F.



MANVERS MAIN:

Gas supplies maintained as new plant replaces obsolete batteries

THE new Manvers Main coke oven plant at Wath-on-Dearne, near Rotherham, in the North Eastern Division, is the National Coal Board's largest. Including the original batteries of coke ovens which have been rebuilt, the throughput of coal per day is approximately 3,000 tons of 0-½ in. washed coking slack.

Awkwardly shaped

The site on which the coke ovens and ancillary plant have been built is restricted and cut up into four awkwardly shaped areas by railway lines.

The coke oven batteries may be divided into two main groups. The first group consists of the old ovens that have been rebuilt, with certain additions, adjoining the old site and amounts to a total of 71 ovens; the second group has been built on a new site and amounts to 66 ovens. The first group has had to be built in the form of five small batteries and the dimensions of all the ovens in this group are—length over sole, 38 ft. 6 in.; chamber height, 13 ft. 3 in.; mean width, 1 ft. 6 in.; and weight per charge, 14 tons of coal as charged. The dimensions had to be somewhat restricted by the limitations of the site and the conditions imposed by existing oven machinery.

The five batteries consist of one of 17 new compound ovens, two of 15 and 13 rebuilt rich gas ovens, one from the final 14 ovens of the old 30-oven battery which have been rebuilt, and one battery of 12 new compound ovens. The total throughput from this group is 1,320 tons of coal per day. A new chimney had to be built for this group of 71 ovens since the old chimney had to be demolished to make room for a spare ram. The second group has been built as two batteries of 33 ovens and since there were no restrictions imposed as in the first group, the oven dimensions are larger. The length over the oven sole is 44 ft. 7 in.; the chamber height, 14 ft. 9 in.; the mean width 1 ft. 5¾ in., and the weight per charge is 17.8 tons of coal as charged. The throughput from this group is 1,570 tons per day, making a total for all ovens of 2,890 tons per day.

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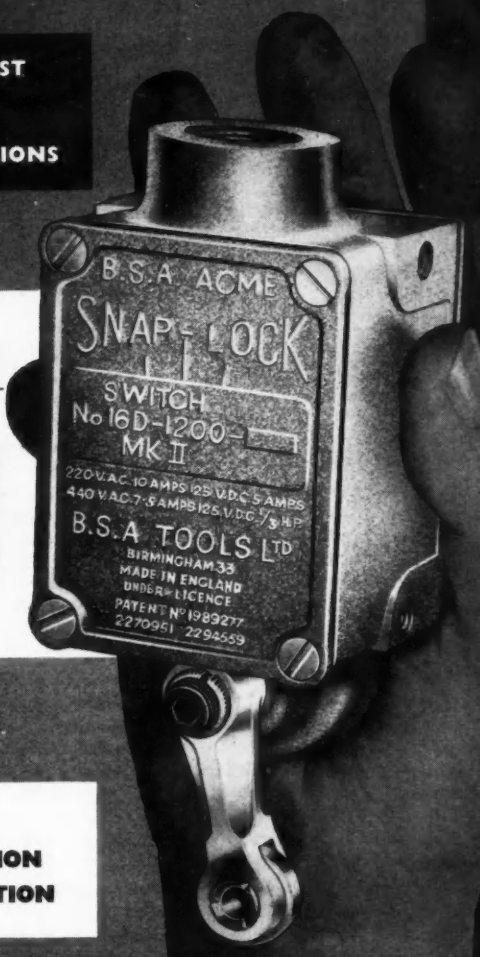

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with the sole flues constructed of a high aluminous material.

The new pusher machines are of the latest type and are based on a Continental design. They are fitted with individual motors for each operation, driving through fluid clutches. The travelling motors are fitted with 'Microsen' gears which enable the ram to be quickly and accurately centred. Should the power supply fail, the ram can be operated at reduced speed by a compressed air motor.

The charging cars are of the usual design but the three-point suspension, formed by mounting the travelling wheels in bogies, with the bogie frames riveted to the chassis on one side and mounted on the other side in pin bearings with hydraulic dampers, prevents 'crabbing' and vibration.

The coke-oven plant has self sealing doors throughout, but the new ovens in both groups have a new type of latch gear by which the door is tightened onto its seating by its own weight instead of by the conventional rose and screw.

Magnetic device

To ensure that perfect alignment between pusher and coke guide has been achieved before the pushing of a charge begins, the N.C.B. are experimenting with a magnetic device operated from both ends of the oven, which, if alignment is faulty, prevents pushing by cutting off the power to the ram motor.

The batteries on the old and new sites have separate conveying systems to the main coke screening plant so that different types of coke can be kept separate if necessary.

Adjacent to the contactor room of the main screening plant is a control desk with a mimic panel, consisting of a geographic line diagram of the whole coke handling and screening plant with indication lights to show the actual flow of coke. The required flows are chosen by selector switches and brought into operation by push buttons on the control desk.

Gas from the new 66-oven battery meets gas from the rebuilt 13-oven and 14-oven batteries at the inlet of primary condensers.

In this way the new ancillary plant deals with gas from the carbonisation of about 2,000 tons of coal a day, leaving the old plant a rather smaller volume of gas than before.

Liquor from the ammonia scrubbers is worked up in a concentrated ammonia liquor plant built on the new site. The quantity of liquor is not great since all the ammonia from the new plant is recovered by a semi-direct ammonium sulphate plant. A vapour line carries the vapour from the latter still to the inlet of the saturators. Both stills are served by a single liming plant.

At the new plant there are five vertical water-tube condensers (one spare) working in parallel, with provision for a sixth, and two turbo-exhausters (one spare) driven by back-pressure steam turbines. The detarrers are of standard Simon-Carves tube type with riveted shells. From the detarrers the gas passes to two saturators (one spare).

Gas from the saturators enters the direct secondary cooling towers, of which there are two in series, a naphthalene washing section being included. The cooled gas passes to three benzole scrubbers in series; the scrubbers have wooden grid fillings, and the washing medium is creosote oil. The gas for sale passes to two static ring-packed naphthalene washers in parallel, each having six washing chambers with corresponding circulating pumps. The washing medium is gas oil, which is regenerated in a plant adjoining the washers.

The dilution gas main will be connected to the outlet of the naphthalene washers, and provision will be made for automatic regulation of the calorific value of the diluted gas. From the outlet of these washers the gas stream divides again. About 4 mill. cu.ft. per day of unpurified gas is separately metered and pumped to the Gas Board at Swinton and Mexborough by two compressors, each of 4 mill. cu.ft. per day capacity, while the remainder amounting to about 15 mill. cu.ft. per day is passed to fan boosters which deliver it to the purifier plant on the other side of the main railway line. The purifiers are Holmes tower purifiers, 27 ft. 6 in. diameter by 71 ft. high.

The expansion of the carbonising plant has made it necessary to increase the capacities of the crude benzole and the benzole rectification plants. A new rectification plant has been built on the further side of the railway and the rectification units from the old plant have been transferred there as part of the new installation. The crude benzole recovery plant has now been concentrated at the old works. The new benzole refinery is one of the most up-to-date plants of its kind and is the result of many years' experience in working up aromatic products of this type from coal carbonisation. Benzene and toluene were being produced at Manvers during the first war but between the wars these products were discontinued with the increased demand for motor spirit. They were resumed during the second war when a steady market for them was built up. The increase in the carbonising capacity of the works has also favoured development in this direction.

The plant consists of two defronting columns, six batch stills, each with its own fractionating column and three washers. The plant also includes an acid regeneration plant for freeing the acid recovered from the benzole washers from tar and making available a dilute acid which is used in the sulphate plant.

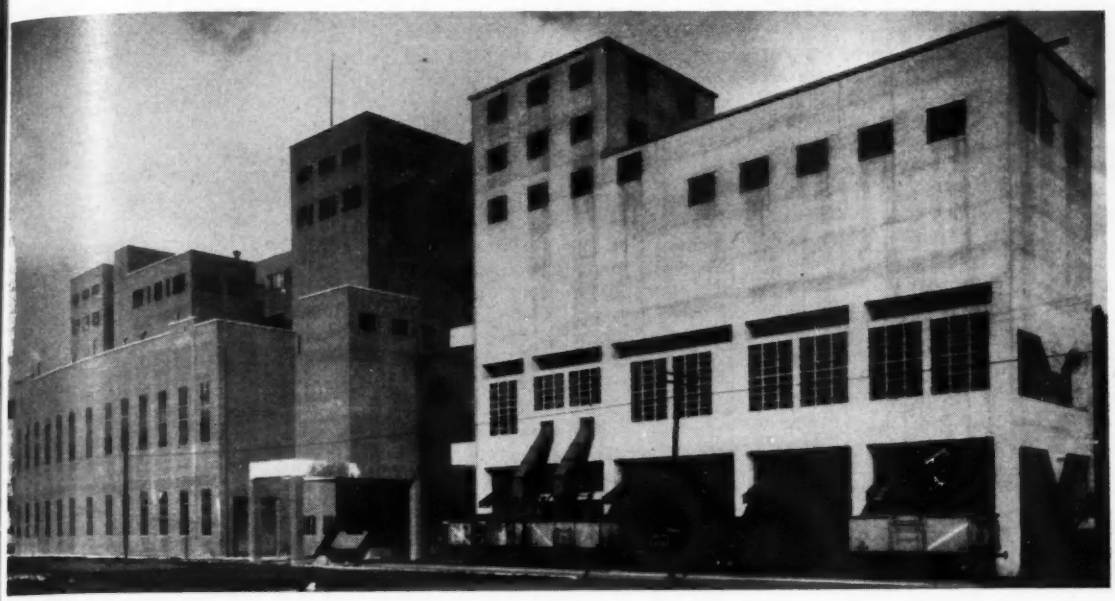
The crude benzole is defronted to remove the low boiling volatile organic sulphur compounds, followed by washing with once used acid and then distilled in the primary stills. This primary distillation gives either motor spirit or semi-pure products. The motor spirit is run off to storage tank but the semi-pure products are washed again with strong acid and redistilled in the secondary stills. The distillation columns work on the pumped reflux system and are capable of producing a wide range of pure products. At this plant, three grades of pure benzene of different specification, toluene, xylene, and solvent naphthas are in regular production.

Steam for the plant at 140 to 150 lb. per sq. in. gauge and 500°F. is received from the back-pressure turbines in the power house and passes to a desuper-heater before entering the heating coils of the stills.

Steam for electric power generation is raised in three Simon-Carves boilers, fitted with automatic control and each capable of raising 60,000 lb. of steam per hour at continuous maximum rating but capable of 70,000 lb. per hour at a continuous peak load rating.

Diluent gas

Provision has not yet been made for the production of a diluent gas for adjusting the calorific value of the outgoing gas to the East Midlands Gas Board's grid. It is proposed to use untreated small coal to generate producer gas for this purpose, since the use of coke would be too expensive. This also applies to the firing of the batteries of compound ovens on producer gas. At the present time, it has been calculated that the cost of producer gas from coke for underfiring would be about 5s. per 1,000 cu.ft. which compares adversely with rich gas underfiring at 2s. 3d. per 1,000 cu.ft. Information is being sought, however, on the possibility of installing slagging producers which would make use of low grade fuel and which would reduce the cost of producer gas considerably. Such a step would greatly increase the available volume of coke oven gas for disposal to the Gas Board.



PROVAN: *extensions increase output and prepare for importation of coke oven gas and methane*

THE present extensions will add 7.04 mill. cu.ft. of coal gas by the commissioning of 48 Woodall-Duckham continuous vertical retorts, and 8 mill. cu.ft. per day of carburetted water gas from a new installation of two Humphreys & Glasgow 'labourless' units each of 4 mill. cu.ft. per day.

The two retort benches are built in line and each is divided into six sections by transverse air-cooled division walls which enable any section to be repaired without affecting the working of the others. The retorts, 26 ft. high by 82 in. long by 10 in. wide at the top tapering on the minor axis, are so arranged that any one retort can be controlled independently of the others.

Secondary air

The retort seating castings and supporting steelwork are cooled by the circulation of the secondary air which safeguards them against overheating and reduces the producer fuel consumption by 7 to 10%.

Coal is delivered to the works in rail waggons on elevated sidings within the coal store. Coal required for immediate use is discharged into a concrete receiving hopper by an electrically operated rotaside waggon tippler, controlled from an adjacent brick-built control cabin.

Duplicate coal conveying systems each capable of handling 80 tons of coal per hour, provide a standby in case of breakdowns.

Duplicate belt conveyors take the coal through a concrete tunnel beneath the coal store and discharge it by way of rotary fillers on to the gravity bucket conveyors encircling the west end bay of the retort house.

The duplicate gravity bucket conveyors elevate the coal and deliver it by belt and reversible shuttle belt conveyors into the overhead storage hoppers above the two retort benches. These hoppers have a capacity of 60 hours requirements of the retorts and are divided into sections serving 12 retorts. Each bench is provided with two collecting mains which are arranged with a fall towards the tar and liquor overflow and cleaning well at the centre. The tar and liquor is run off to separating tanks. The liquor is decanted and pumped back to the sprays in the offtakes and collecting mains and the tar is drained off at intervals. There are two separating tanks, one serving each bench, and three steam driven liquor circulating pumps, one for each bench with a common standby.

The gas leaves each collecting main by a vertical uptake and passes to a foul main above. The foul mains are extended to the centre bay between the retort benches where the two mains from each bench are coupled into a common main fitted with a Bryan Donkin retort house governor. The crude gas then passes from the retort house and is carried by a suction main to the condensers.

Producer gas for heating the retorts is supplied by three 9 ft. diameter Humphreys & Glasgow mechanical producers gasifying ½-in. to 2-in. coke. Each is capable of serving 24 retorts with one acting as a standby. The gas generated is passed through cyclone dust separators and enters the retort settings through the producer gas main, the pressure in which is controlled by an Askania automatic gas regulator.

Steam supply

Annular boilers generating steam at 20 lb. per sq. in. gauge, supplemented by the works low pressure system, supply steam to saturate the air blast.

There are three waste heat boilers each large enough to deal with the waste gases from 24 retorts, with one boiler acting as a standby. They are of the horizontal fire-tube induced draught type, 7 ft. 9¾ in. in diameter and 15 ft. long, and are designed for a working pressure of 160 lb. per sq. in. gauge, with a capacity of 16,300 lb. of steam per hour and 100° F superheat.

Facilities for admitting augmentation gases from each mechanical producer up to the equivalent of waste gases from eight retorts enable the

boilers to be maintained at their full rated capacity when only 16 retorts of either bench are in operation. If necessary all three boilers can operate simultaneously when supplied with maximum waste gases from the retorts and full augmentation from two producers.

The coke screening and storage plant is of reinforced concrete construction, built in line with the retort house and accommodating duplicate screening systems, one of which is a standby, over a range of storage bunkers. Each screening system is capable of handling 40 tons of coke per hour. The four grades of coke are delivered into their respective compartments of the storage bunkers, spiral chutes being used for the largest size and a system of feeder and shuttle belt conveyors for the oversize from the grading screens. The two screening systems are separated by a concrete division wall to facilitate repairs.

Storage capacity

The range of bunkers beneath the screens has a total storage capacity of 600 tons of coke and breeze.

Breeze from the smallest size compartment of the coke bunkers is fed direct to rail wagons or road vehicles by chutes in which provision has been made for the future installation of dedusting screens.

Within the retort house the graded coke for the producers is delivered from the conveyor down a spiral chute and by rotary fillers to the coke gravity bucket conveyors, and thence by a system of belt conveyors to the 69-ton capacity producer fuel hopper which is arranged within a brick tower over the mechanical producers. An electrically-propelled charging skip, running on an overhead rail, delivers the coke from the hopper to the producers as required, the amount being recorded by Avery automatic weighers and totalisers.

To prevent dust or smoke nuisance, dust extraction hoods are fitted at the coke dischargers and connected by ducting to two Drummond washer filter units located outside the retort house.

A Sturtevant vacuum cleaning plant is provided to serve both the retort house and the coke screening plant. Numerous hose coupling points are connected to the turbo-exhauster and filter receiver unit which is installed at ground level in the east end bay of the retort house. Dust collected in the receiver is then passed to the Drummond washers for treatment.

The new carburetted water gas plant consists of two Humphreys & Glasgow labourless units which together are capable of producing 8 mill. cu.ft. of 450 B.t.u. gas per day. It adjoins and supplements the existing water gas installation, and is housed in a steel-framed brick building of sufficient size to accommodate a third unit in the future.

The plant is hydraulic and fully automatic in operation and includes provision for heavy oil enrichment should this be desired. Incorporated in the units are water-sealed self-clinkering generators, chequered carburettors and superheaters, and elevated washers with conical bases for sludge discharge. The generators are complete with coke chargers, top gas chambers equipped for heavy oil spraying, and low pressure annular boilers producing steam for the process. The carburettors are designed for the gasification of either gas oil or heavy fuel oil, an alternative arrangement which involves a considerable increase in the size of the vessels to accommodate chequered air preheating zones required when heavy oil is being used. Horizontal fire-tube waste heat boilers operating at 165 lb. per sq. in. gauge provide high pressure steam for the works system.

Coke for the plant is discharged from road vehicles into a concrete feed hopper and elevated by twin independent skip hoists, each capable of handling 20 tons of coke per hour. A system of feeder and shuttle belt conveyors distributes the coke throughout the overhead bunkers, each of which has storage space for 170 tons of fuel.

Ancillary equipment installed with the c.w.g. plant includes two Humphreys & Glasgow vertical tube multipass condensers to cool the gas before it passes into the existing relief holder. After leaving the holder, and the exhauster house the gas passes through two Whessoe W-D electrostatic detarrers, capable of dealing with a total 16 mill. cu.ft. of gas per day, and thence into the coal gas stream before being purified.

The new purifiers (in course of completion) will increase the purification capacity of the station by 7 mill. cu.ft. per day. They are of reinforced concrete construction and consist of two sets of five boxes, each 40 ft. square by 6 ft. deep with a 3 ft. depth of oxide in single layer. A revivifying floor is constructed above the boxes and the whole installation is roofed over. The boxes are charged with oxide by means of chutes from the revivifying floor directly above, and the arrangement obviates the need for costly mechanical handling plant.

The gas manufactured in the continuous vertical retort and carburetted water gas plants, augmented by purified coke oven gas, will pass from the holders to the booster house (in course of completion) for distribution. There are three Bryan Donkin turbo boosters, with provision for a fourth, of the Donkin Rateau single stage radial-vaned centrifugal type, each with a capacity of .75 mill. cu.ft. of gas per hour against an outlet pressure of 6 lb. per sq. in. gauge. The sets are arranged to work in parallel by a system of sequence operation which is automatically controlled by the demand. A by-pass and anti-surge device fitted to each booster ensures that there will be no hunting when the machines are operating in parallel.

The boosters are driven by Trislot type double pipe ventilated induction motors manufactured by Laurence Scott and Electromotors Ltd., and designed to operate on a 3.3kV, 3 phase, 50 cycle supply and to be capable of an output of 500 h.p. at 1,480 r.p.m. Each motor is provided with a ventilating fan unit complete with flameproof driving motor, a totally enclosed high speed increasing gear unit with forced lubrication, and a scoop control fluid coupling working in conjunction with a gas governor to maintain, by variable booster speeds, a constant pressure in the outlet main. The three governors are inter-connected to a single control point on the instrument panel. There is also provision for manual regulation of the fluid couplings should this be necessary.

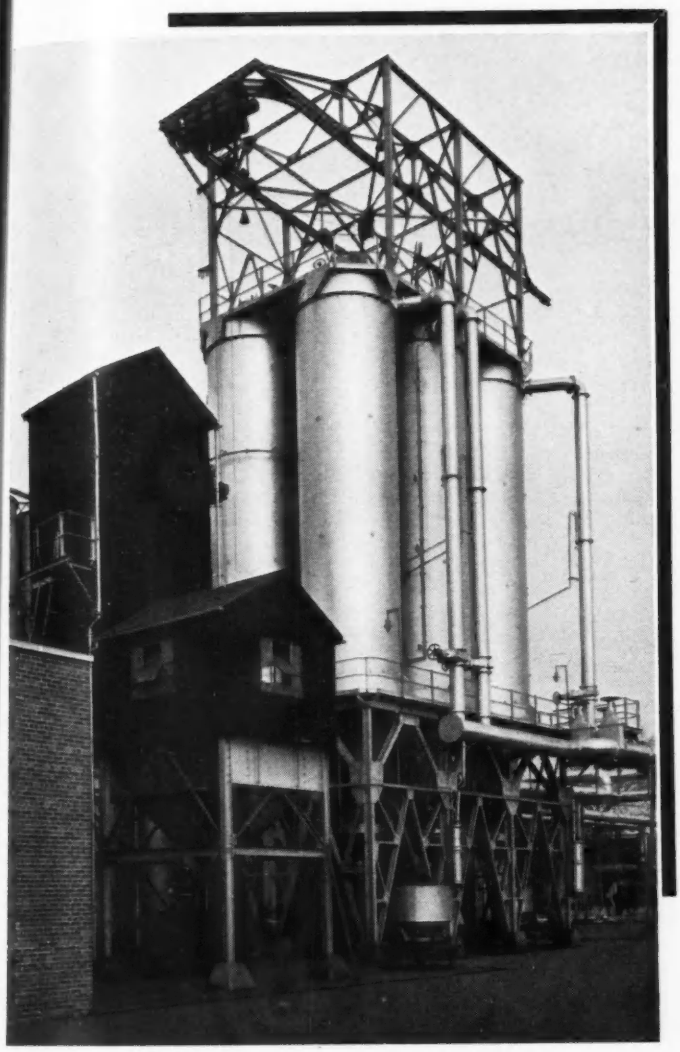
The motors are protected for overload and should any failure take place either with motor, gear box or booster, the set will cut out and the standby machine will take over automatically.

The instrument panel in the booster house is divided into two sections, one for electrical equipment and the other for gas equipment showing inlet and outlet pressure flows. Push-button starters and motor selector switches and ammeters are incorporated as well as a series of operational pilot lights.

Switchboard

In order that continuity of supply be maintained, duplicate feeders from two separate points on the South of Scotland Electricity Board's network have been brought into the main substation. This supply is 6.6 kV, 3 phase, 50 cycle and is fed into a nine-panel switchboard. From this switchboard, which has been sited in the centre of the load area, 6.6 kV feeders radiate to the secondary substation and the new booster house substation.

The main and secondary substation high tension switchboards each supply two local transformers, rated 500 kVA, 6.6 kV/415 volt, 3 phase, which provide the low tension supply to the works.



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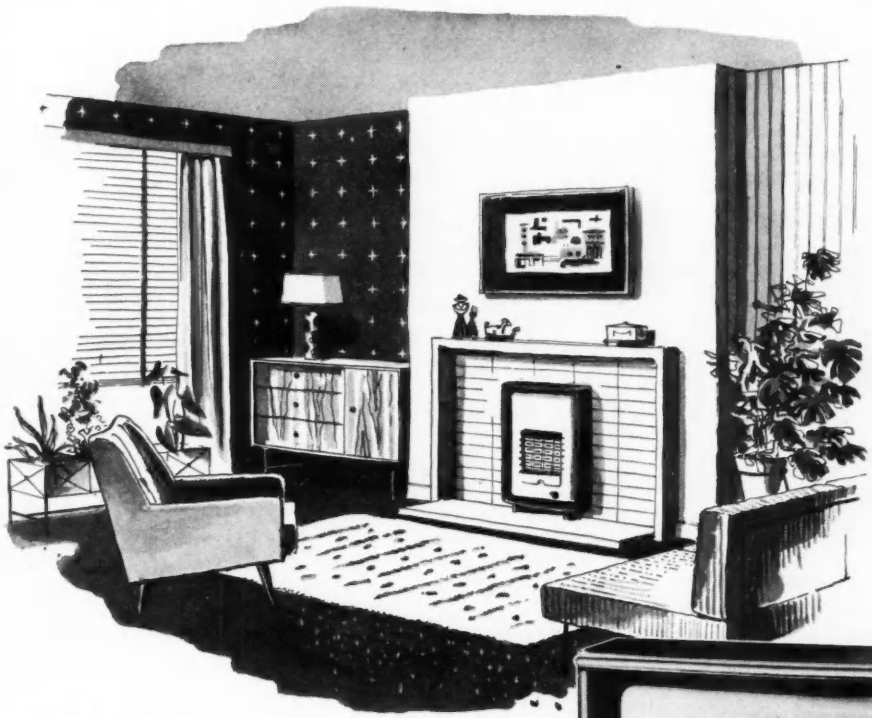

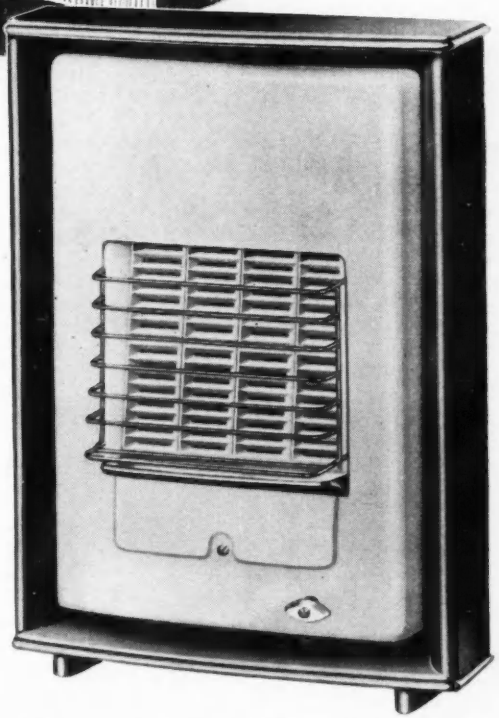

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From our 'Personalities' of the past year

FOUR executive officers were appointed members of their respective boards this year. They were:—MR. H. R. HART, General Manager of the Glasgow and Western Division of the Scottish Gas Board; MR. A. GWYNNE DAVIES, M.B.E., who combines his new duties with those of his position as Secretary to the East Midlands Gas Board; MR. A. H. MORLAND, Secretary and Accountant, South Western Gas Board; and MR. H. JOHNSTON, O.B.E., Chief Engineer, North Eastern Gas Board.

SIR HAROLD SMITH was re-appointed Chairman of the Gas Council when his present term of office expires today.

It was announced during the year that MR. R. PRINCE, Chief Engineer, and MR. F. WHITE, Chief Supply Officer, South Eastern Gas Board, were to retire in 1959. The Board appointed MR. C. STOTT as Chief Engineer (Designate), and MR. D. L. HORLOCK as Chief Supply Officer (Designate).

MR. N. H. GREENWAY, M.B.E., joined the Southern Gas Board as Industrial Development Engineer on May 1.

Succeeding DR. ARTHUR MARSDEN as Area Scientist, South Western Gas Board, at the end of September was DR. M. J. F. OLDEN. The Senior Fuel Chemist of the North Thames Gas Board, DR. S. PEXTON, retired on March 1.

MR. GILBERT SUGDEN succeeded MR. R. DAVIS as Chief Accountant, West Midlands Gas Board.

MRS. JOAN ROBINS was appointed Home Service Adviser, Gas Council, in succession to MRS. EILEEN MURPHY, who retired at the end of the year. Mrs. Robins was previously the North Thames Gas Board's Chief Home Service Adviser.

MR. A. R. DAVIS was appointed by the Gas Council to succeed MR. W. BAILEY as Chief Accountant when Mr. Bailey took over the Secretaryship of the Council at the end of September. Mr. Davis was previously Chief Accountant of the West Midlands Gas Board.

MR. P. G. WRIGHT, formerly Administrative Secretary at Watson House, was appointed by the North Thames Gas Board to be Secretary of the Watson House Centre, and MR. R. C. W. T. SALUSBURY, Assistant Secretary. The appointments followed the resignation of MR. EMRYS-ROBERTS as Technical Secretary at the Centre.

MR. COLIN W. SMETTEM, Solicitor to the North Western Gas Board, was seconded to the Board's Liverpool Group as Assistant to the General Manager, MR. J. G. O. DRAKE. The secondment, which was to be for an initial period of 12 months, began on March 1. During it the Board's legal department is being administered by the Deputy Solicitor, MR. LESLIE CATTELL.

Among some of the developments in the divisions, MR. ROBERT HOLLAND was appointed Lincolnshire Divisional Sales and Service Manager by the East Midlands Gas Board, taking over from MR. GEORGE DAVIES; and MR. J. E. STANIER, O.B.E., G.M., retired as Divisional General Manager of the North Staffordshire Division of the West Midlands Gas Board, MR. LESLIE WILLIAM JOHNSON, then Divisional Accountant, taking his place.

Among the manufacturers, Radiation, Ltd., appointed MR. A. J. PARKER as Managing Director; MR. J. IVAN YATES, a member of the Board, became Managing Director of the new Company—Radiation Group Export Sales, Ltd. MR. ARTHUR DOCKING, for many years Managing Director of Radiant-Heating, Ltd., retired in June. He was succeeded by MR. W. COMPTON CARR.

MR. S. THOMSON, Director and General Manager—Sales, of Ideal Boilers & Radiators Ltd., also retired in the summer, and MR. F. L. SHAW was appointed General Manager—Sales.

MAJOR DESMOND ABEL SMITH retired as Chairman of the Bryan-Donkin Co., Ltd. He was replaced by MR. ALEX ABEL SMITH, while MR. R. T. REDFERN was appointed Vice-Chairman.

MR. JACK WORTLEY was appointed to the Board of R. & A. Main Ltd., as Works Director. He became a Director of the Main Enamel Manufacturing Co., Ltd., in 1955.

MR. WILLIAM FOSTER was appointed Director of Sales, U.G.I. Meters Division, by United Gas Industries Ltd.; while MR. J. B. CLAY became Sales Controller, U.G.I. Meters Division (Gas).

Mr. F. G. Brewer, O.B.E., who retired at the end of September from the Secretaryship of the Gas Council, a position he had held since its inception, was presented with a silver cigarette box and a picnic hamper by Mr. W. Bailey (who succeeds him as Secretary) on behalf of his colleagues and friends at the Gas Council.

The Year's Obituary

SIR ANDREW CLOW, who was Chairman of the Scottish Gas Board from nationalisation until his retirement in April, 1956, died aged 67, early in the year. In a tribute, Mr. Sydney Smith, present Chairman of the Scottish Gas Board, said: 'His wide experience of the Civil Service and as a legislator had a marked influence on the form of organisation created during the earlier years of nationalisation to plan and administer the affairs of the Scottish Gas Board, towards the progress and future success of which he exercised his many talents.'

SIR GEORGE EVETTS, O.B.E., who was elected an Honorary Member of the Institution of Gas Engineers in 1953, died in the early summer, aged 75.

MR. JOHN HAMPTON PAWLEY, a Director of George Cohen, Sons and Co., Ltd., died aged 78 after 51 years' service with the Company.

MR. ALEXANDER JAMIESON, who had been Group Manager at Greenock and later of the Western Group, Scottish Gas Board, died, aged 57.

MR. ERIC CULSHAW, North Western Area Manager, Parkinson Cowan Appliances Ltd. (Gas Division), died suddenly at the age of 50 in February.

Gas Journal

ANNUAL REVIEW NUMBER

VOL. 296. 110th YEAR LONDON, DECEMBER 31, 1958 No. 4981 PRICE 1/6

THE UNIVERSITY OF MICHIGAN
JAN 19 1959
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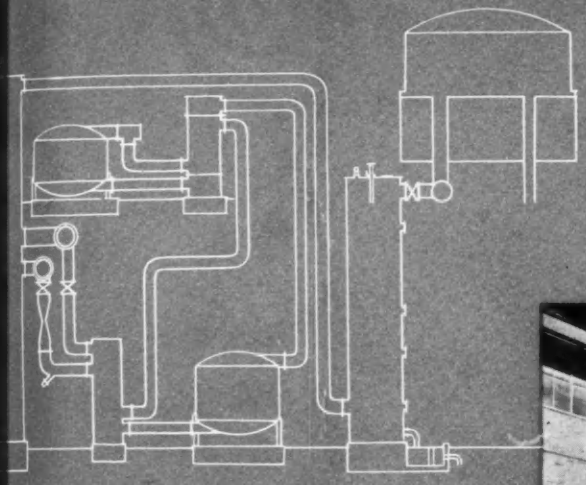
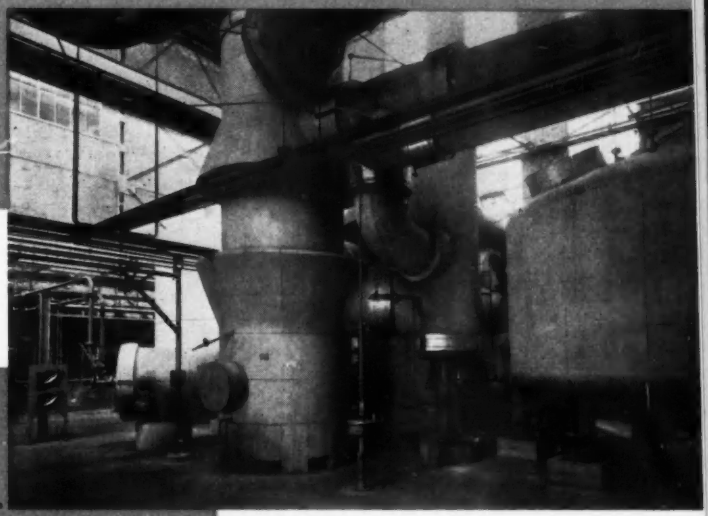


CO Conversion
CO_2 Absorption



34 units

CO conversion plant, total installed capacity 17,000,000 cu. ft/day.

.... with a combined output exceeding 120.000.000 cu. ft/day have been installed most of which also incorporate processes for the absorption of CO_2 and for the final removal of CO and CO_2 under pressures varying between 300 lbs p.s.i. and 5.500 lbs p.s.i.

The Power-Gas Corporation Limited have had over 30 years experience in the design, installation and commissioning of CO conversion plant and associated high pressure processes for the chemical and allied industries in all parts of the world.

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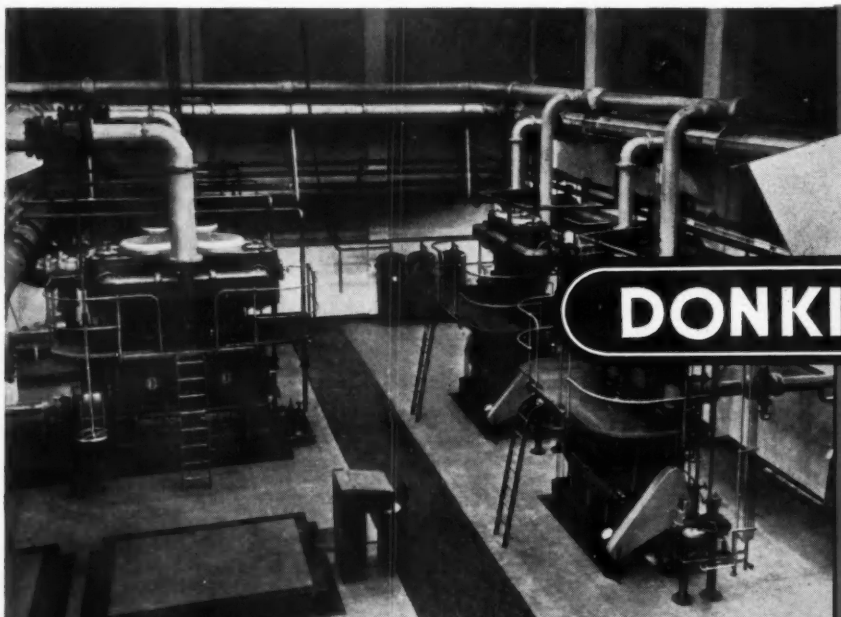


DONKIN

COMPRESSORS

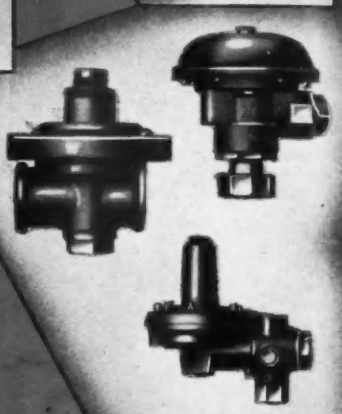
VALVES

Serving Industry

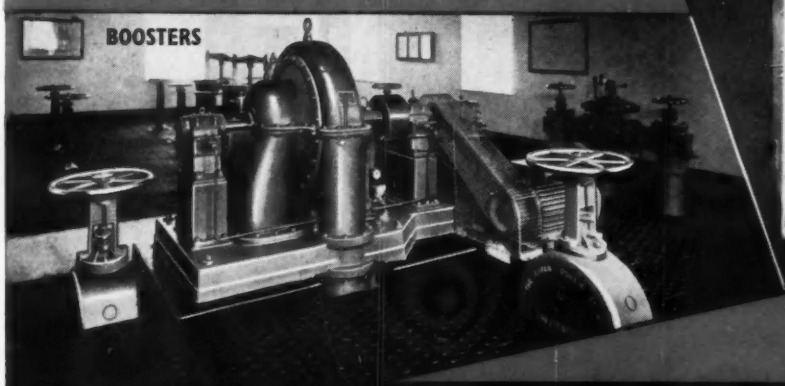
Millions of cubic feet of gas are used daily in factories and homes throughout the country.

The comprehensive nature of DONKIN equipment is such as to cover every phase of gas distribution and control.

Over 150 years experience, sound engineering practice and design together with first class workmanship have proved the reliability of DONKIN products which are well known in many parts of the world.



REGULATORS



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THE BRYAN DONKIN Co. LTD. CHESTERFIELD

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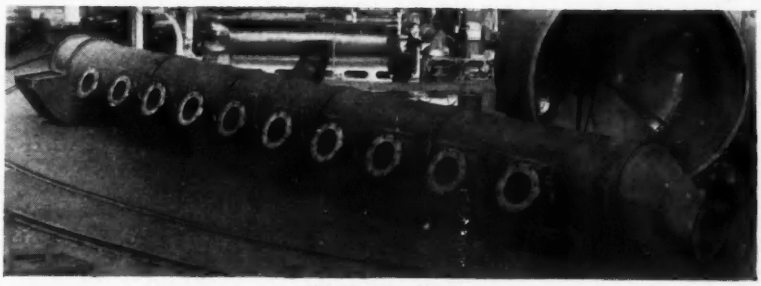
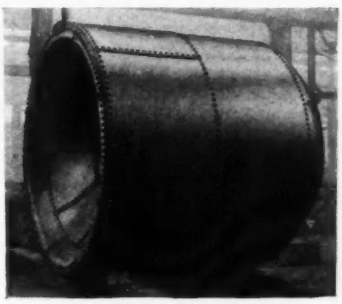
The 80 ton hydraulic riveting machine illustrated, is working on a gasholder column in the Plate Fabrication Shop. All classes of riveting are carried out at Dempsters to the most exacting specifications.

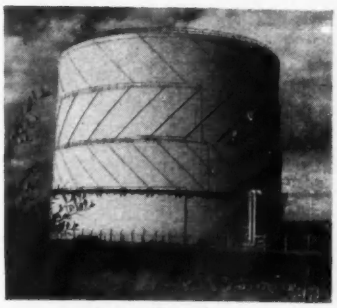
Makers of high quality by-product and chemical plant — condensers — detarrers — gas connections and valves—gasholders— iron castings — purifiers — stills — distillation columns and heat exchangers — tanks — washers—welded and riveted steelwork.



Riveted Process Vessels



Riveted Tar Still



Riveted Gasholder

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Constructional Gas and Chemical Engineers

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GAS plays an essential part in many lives and homes in this country. Cooking, heating, in many districts, lighting, workshop and factory, too, depend upon an efficient and uninterrupted supply of gas, pressured evenly through a sound system of trunk and subsidiary mains.

The laying of such mains calls for high standard work by men who know what they are doing from long years of experience, coupled with advanced technical skill—and spurred by the knowledge that on their efforts rests the well-being of millions of families.

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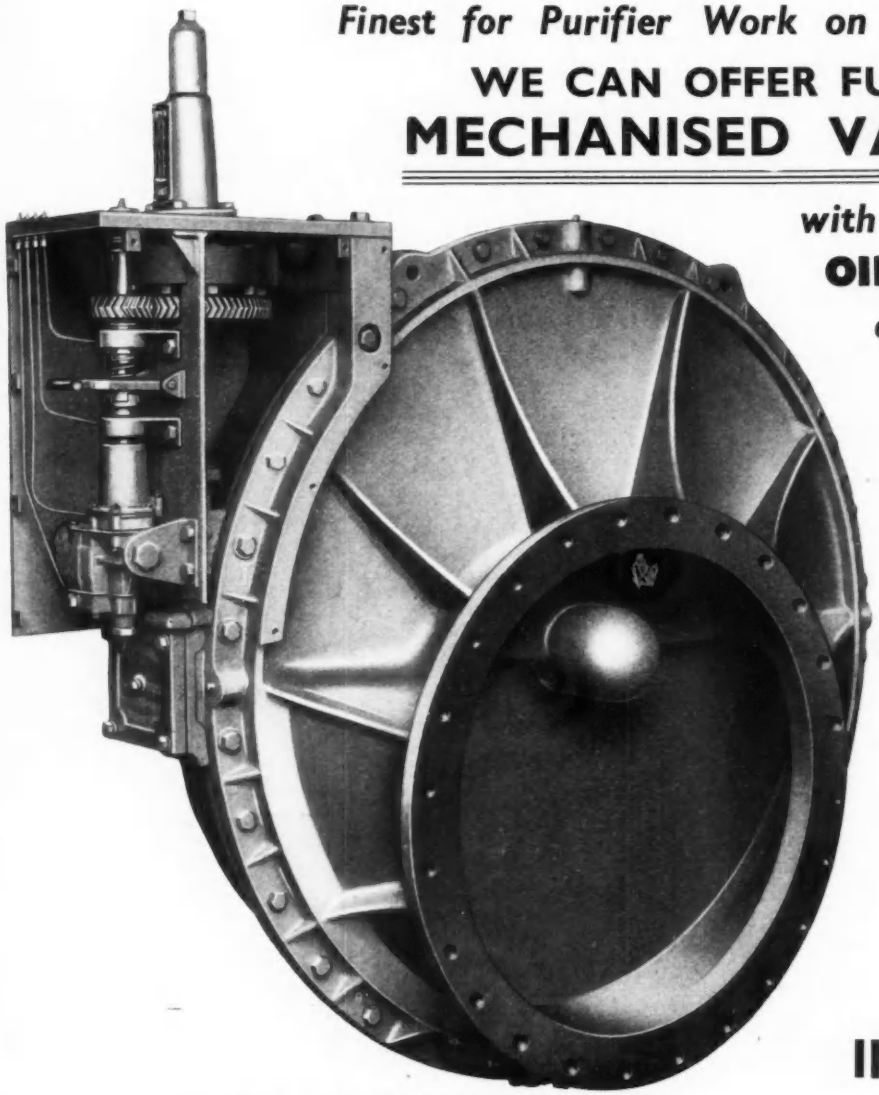
WE CAN OFFER FULLY MECHANISED VALVES



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REMOTE CONTROL HIGHLY SUITABLE FOR THE FREQUENT ROTATION OF VALVES ON YOUR OXIDE PURIFIERS

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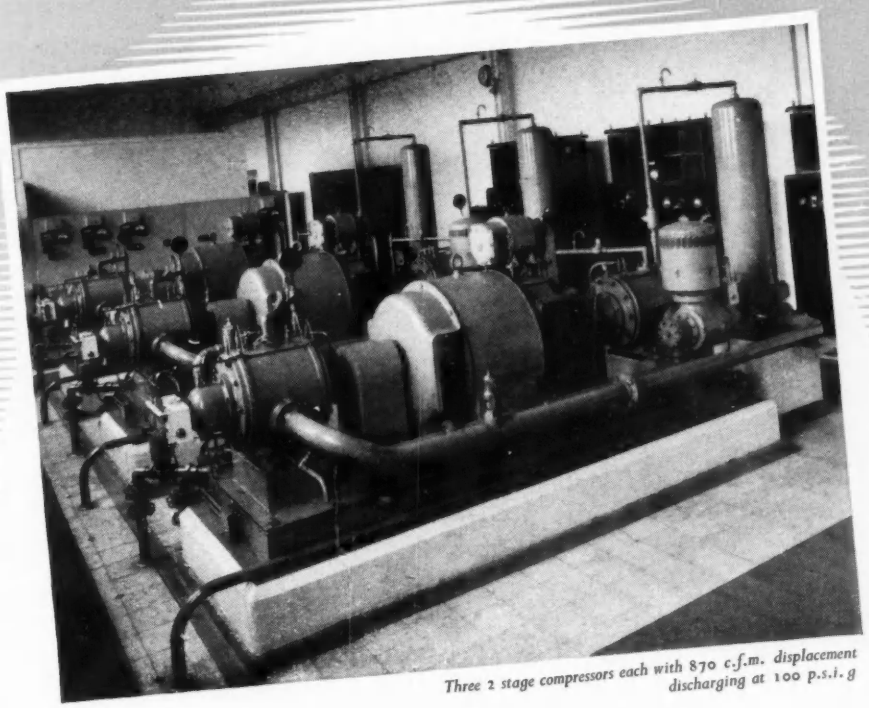

Three 2 stage compressors each with 870 c.f.m. displacement discharging at 100 p.s.i.g

Rotary Compressors and Vacuum Pumps

The Hick Hargreaves Rotary Compressor is of the eccentric rotor type, with sliding steel blades which are prevented from making contact with the cylinder walls by restraining rings. High rotational speeds can thus be achieved without great frictional losses. Hick Hargreaves Rotary Compressors have many other advantages — easy and cheap installation; retention of initial high performance; regular air flow and low noise level; easy maintenance due to the absence of moving valves, and the reduction of wear to a minimum by the use of roller bearings. A comprehensive range of both single and two stage compressors and vacuum pumps is available with capacities up to 2,000 c.f.m.

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The photograph on the left shows men working on the crown of a spi guided Gasholder which is being constructed in an existing brick t

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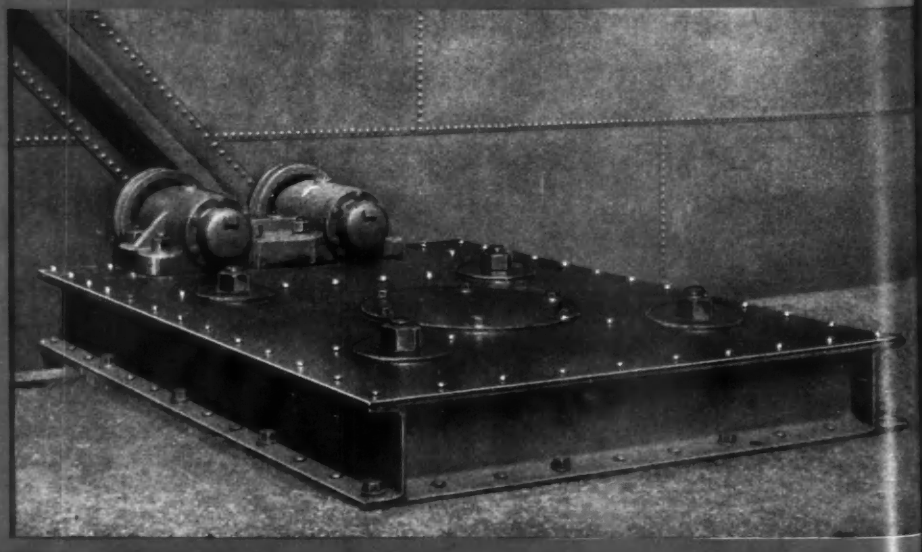
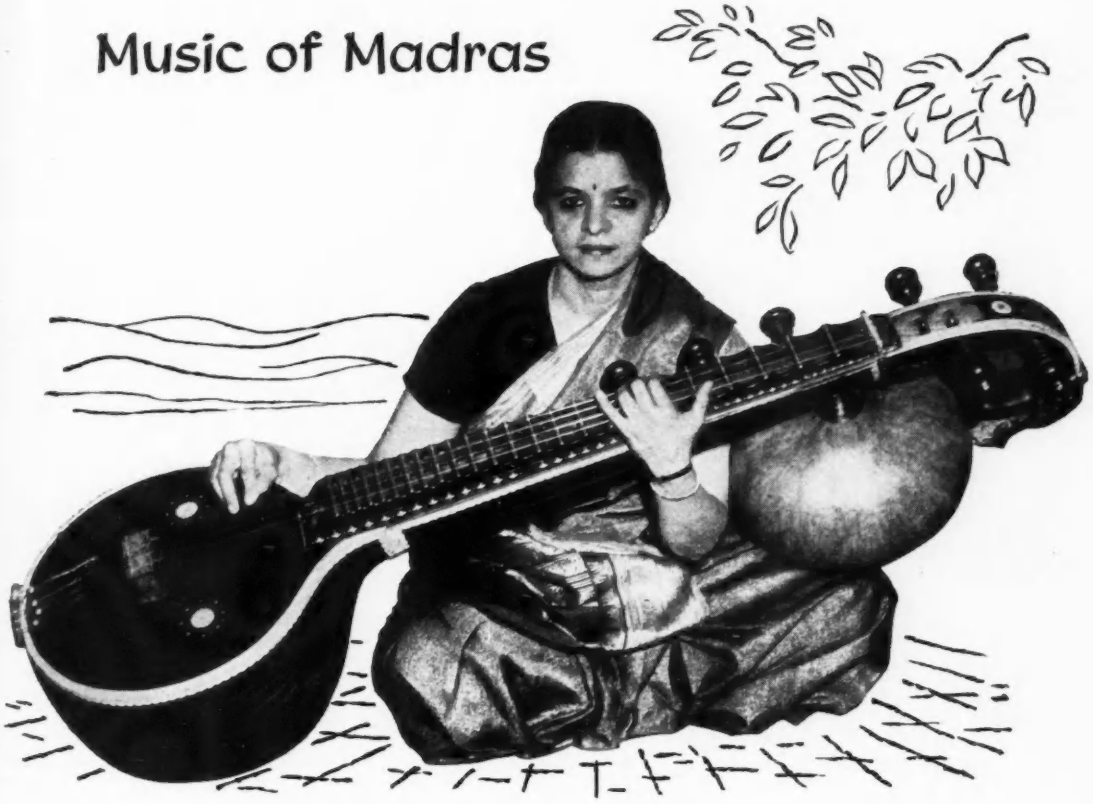
The photograph on the right shows the method of accommodating the tank carriages on the foundation blocks of the old standards



Music of Madras



Music plays a large part in the leisure and pleasure of the people of Madras, among whom Carnatic music—the South Indian classical style—is still a living tradition. The shapely *veena*, illustrated here, is in every sense an instrument of this tradition. During their working hours, many of the country people of Madras State breed sheep whose skins eventually find their way into the industry of the Western world—the best of them, hand-picked, providing the raw material of 'Multitest' meter diaphragms. The sheep raised in Madras are the so-called E.I. Persians; their skins have qualities not found elsewhere, making them a 'must' in meters which are to be as accurate and reliable as man can make them. 'Multitest' experience makes best use of the best materials.

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Multitest by the Metropolitan Leather Co. Ltd.

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GAS MAIN SHOWING METALOCK REPAIR

This Gas Main had 9′ 9″ of fracture and was successfully repaired by the METALOCK process in eight days, on site, and WITHOUT SHUTTING OFF THE SUPPLY OF GAS

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Condenser Tube Corrosion Eliminated

Gas plant Engineers, weary of six-monthly descaling and frequent re-tubing of condensers, will acclaim the amazing record of this Reynolds Composite Tube, installed in a gas condenser at the Salford Undertaking of the North West Gas Board. 4½ years without maintenance has resulted only in a soft film, less than 1/64″ thick, with no sign of corrosion or erosion.

Reynolds Composite Tubes cut maintenance costs by virtually eliminating condenser tube failure, de-scaling, and re-tubing. Their greater thermal efficiency and freedom from scaling reduce gas production costs by enabling condensers to be operated without interruption, at higher temperatures, and with consistently greater efficiency.

Write to Reynolds to-day for more information

4½ years at the "hot end" of a gas condenser, without cleaning, and still as sound as when new!

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Composite Tubing

STEEL/ALUMINIUM FOR CONDENSER TUBES, ETC.
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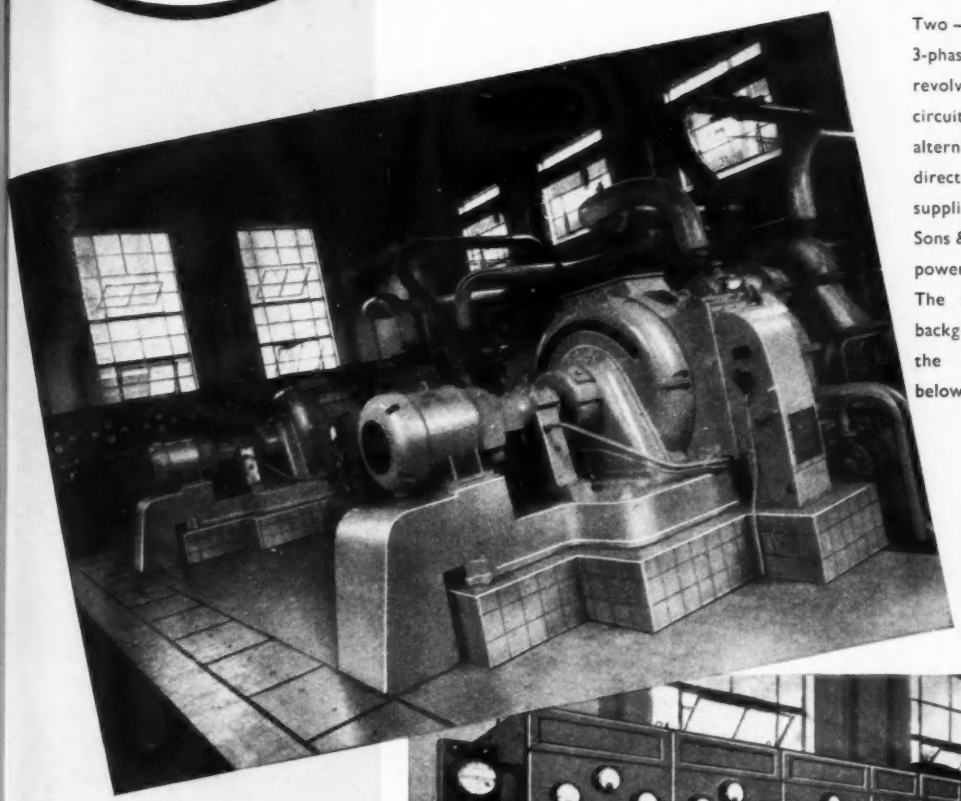
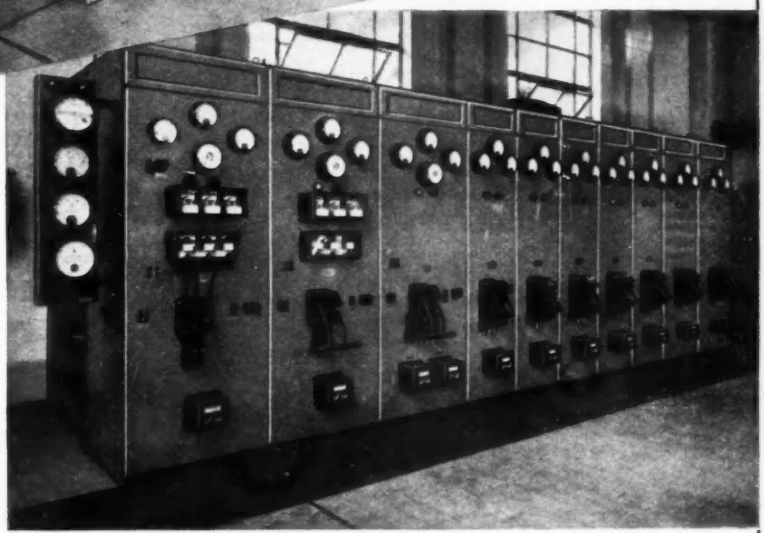
AT LITCHURCH WORKS

DERBY SUB-DIVISION — EAST MIDLANDS GAS BOARD



Two — 1250 kVA 415 volt 3-phase 50 cycle 1000 r.p.m. revolving field, closed-air-circuit salient pole type alternators complete with direct-coupled exciters supplied to W. H. Allen Sons & Co. Ltd., to provide power at Litchurch Works. The switchboard in the background is shown in the second illustration below.



The main low tension Distribution Switchboard controlling the two alternators, a 1000 kW grid supply feeder, 200 kW rectifier feeders, and various 600 amp. outgoing feeders.

THE ELECTRIC CONSTRUCTION COMPANY LTD.

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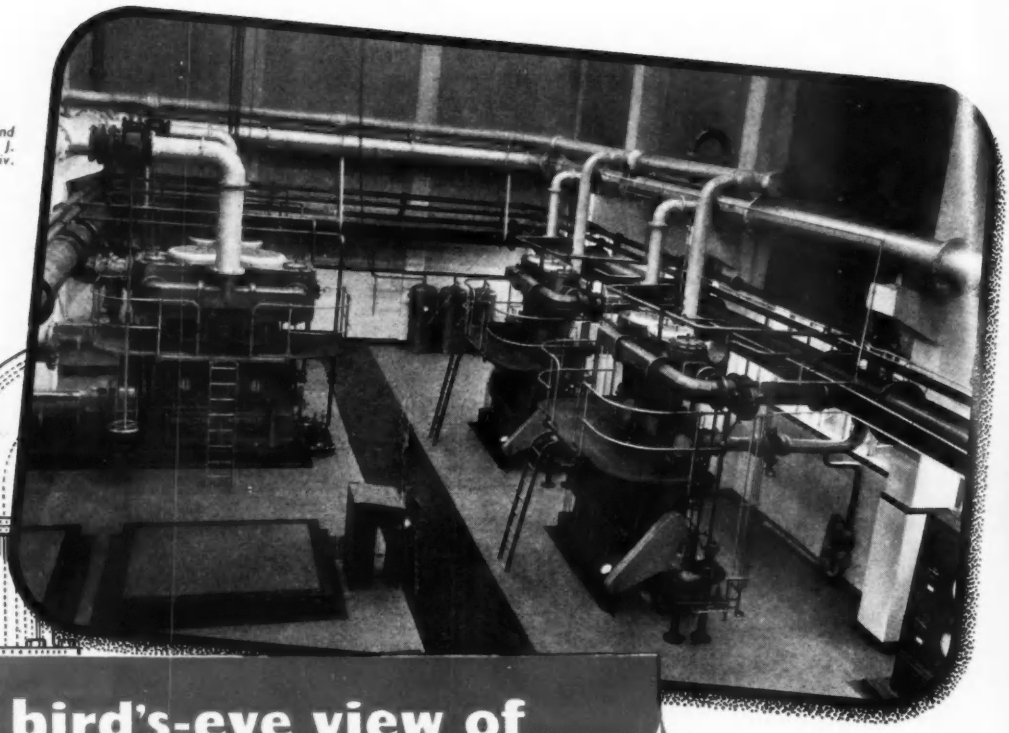

Illustration by kind permission of R. J. Barritt, Esq., Div. Carbonisation Manager

A bird's-eye view of 14,000,000 cubic feet per day

THAT is the capacity of these four "DONKIN" Gas Compressors, installed at Nantgarw Coke Ovens of the N.C.B., South Western Division, with foundations for another machine to pass a further 6,000,000 cubic feet per day.

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RELIABILITY, STURDINESS AND FIRST-CLASS WORKMANSHIP are the keynotes of these machines, which are required to withstand long periods of continuous operation. When requiring a Gas Compressor be sure to get more than a bird's-eye view of a "DONKIN" unit. Let our engineers show you the picture from all angles.

The
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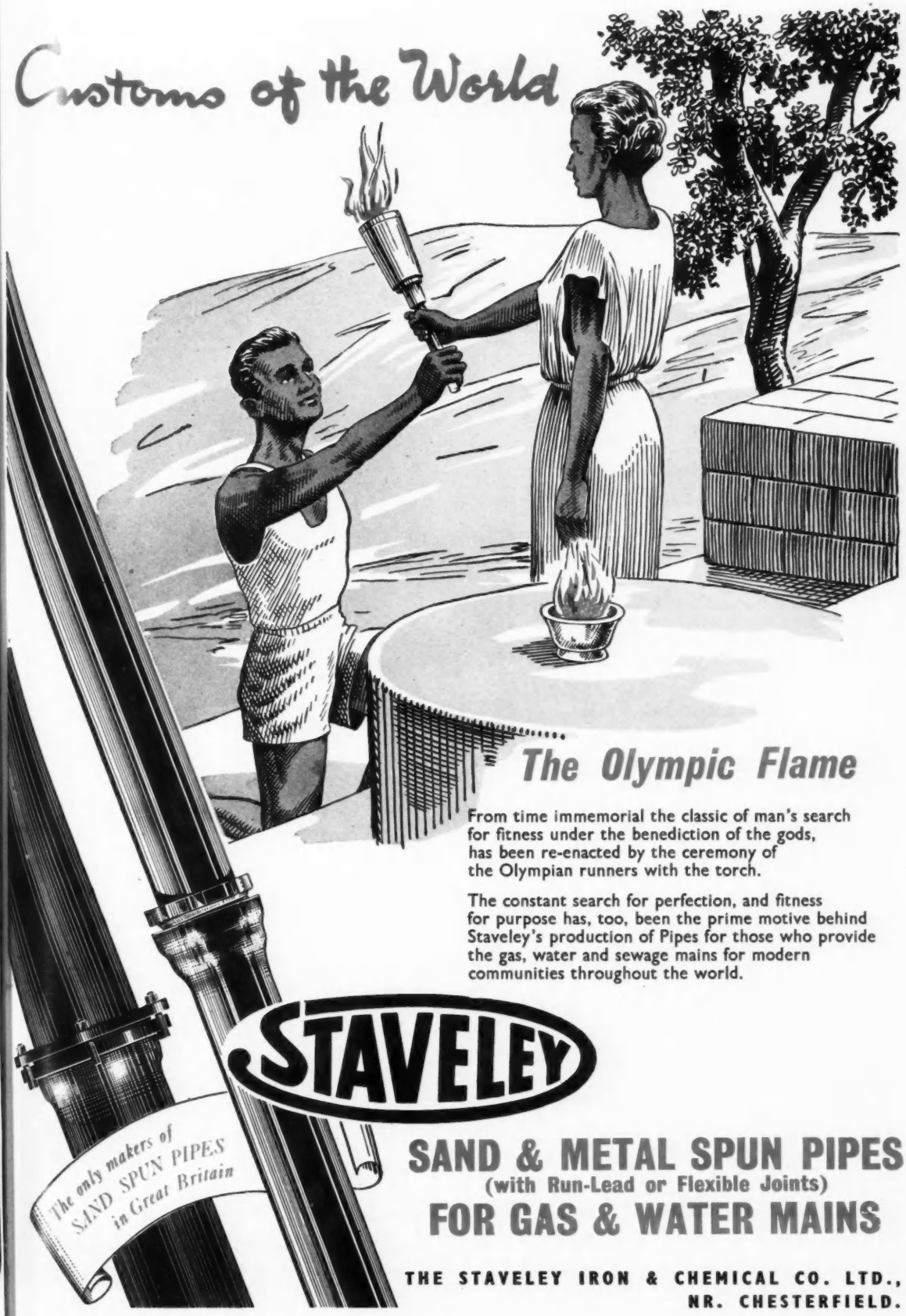
— Members of the Society of British Gas Industries —

Customs of the World



The Olympic Flame

From time immemorial the classic of man's search for fitness under the benediction of the gods, has been re-enacted by the ceremony of the Olympian runners with the torch.

The constant search for perfection, and fitness for purpose has, too, been the prime motive behind Staveley's production of Pipes for those who provide the gas, water and sewage mains for modern communities throughout the world.

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SAND & METAL SPUN PIPES
(with Run-Lead or Flexible Joints)
FOR GAS & WATER MAINS

THE STAVELEY IRON & CHEMICAL CO. LTD.,
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For the efficient haulage of trucks, barges, furnace bogies and kiln cars, etc.

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CAPSTAN WINCHES

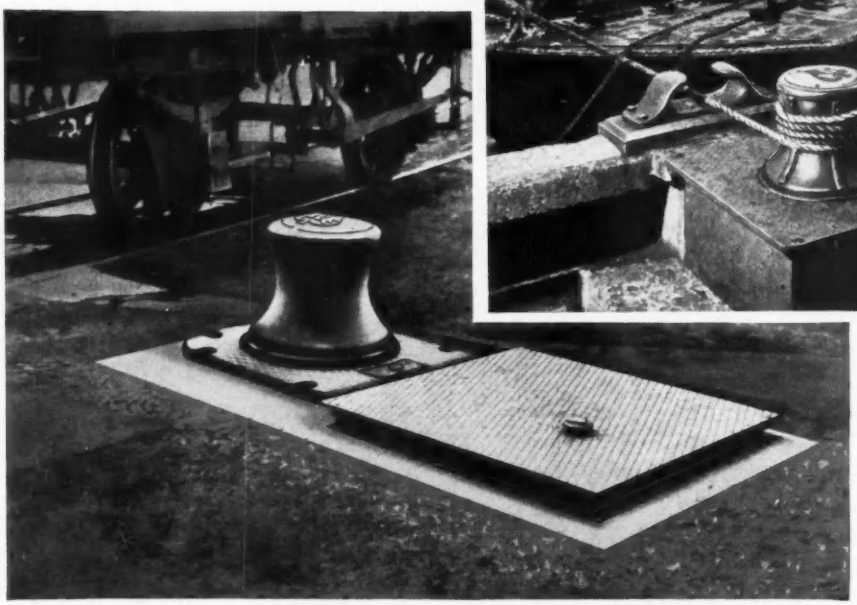
Capacity: 5 cwt to 10 tons

Rope Speeds: 45 to 160 ft/min

Electrically Powered

An ACE five ton worm geared heavy duty winch handling lighters at Butler's Wharf, London. ▶

A typical ACE 3 ton vertical bollard winch as universally used in marshalling yards. Designed for heavy and continuous duty. ▼



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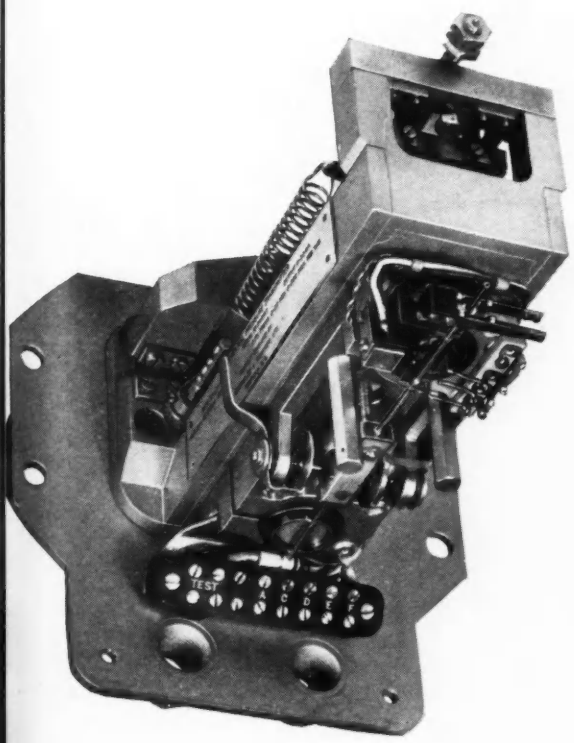
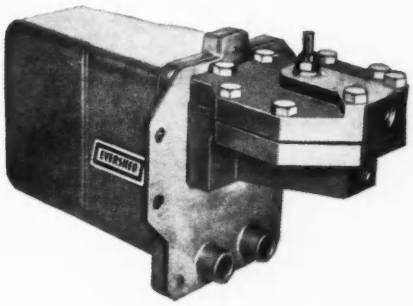
Control flow with confidence by using EVERSHED FLOW TRANSMITTER





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the ER.125 can be supplied with:

Ranges 0–5″ to 0–50″ W.G.
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Maximum working pressures 1,000 p.s.i.

"Fluon" coated glass cloth or reinforced "Neoprene" diaphragms.

Output current proportional to flow or differential pressures:
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This transmitter is intrinsically safe for petroleum vapours and hydrogen.

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7/97

"But why can't they use my magnet?"

"Well, you see Johnny, it's because *your* sort of magnet can't be switched 'on and off'!"

"Huh! I wouldn't like mine to do that!"

"I know, but then you don't use yours to control water or gas and things."

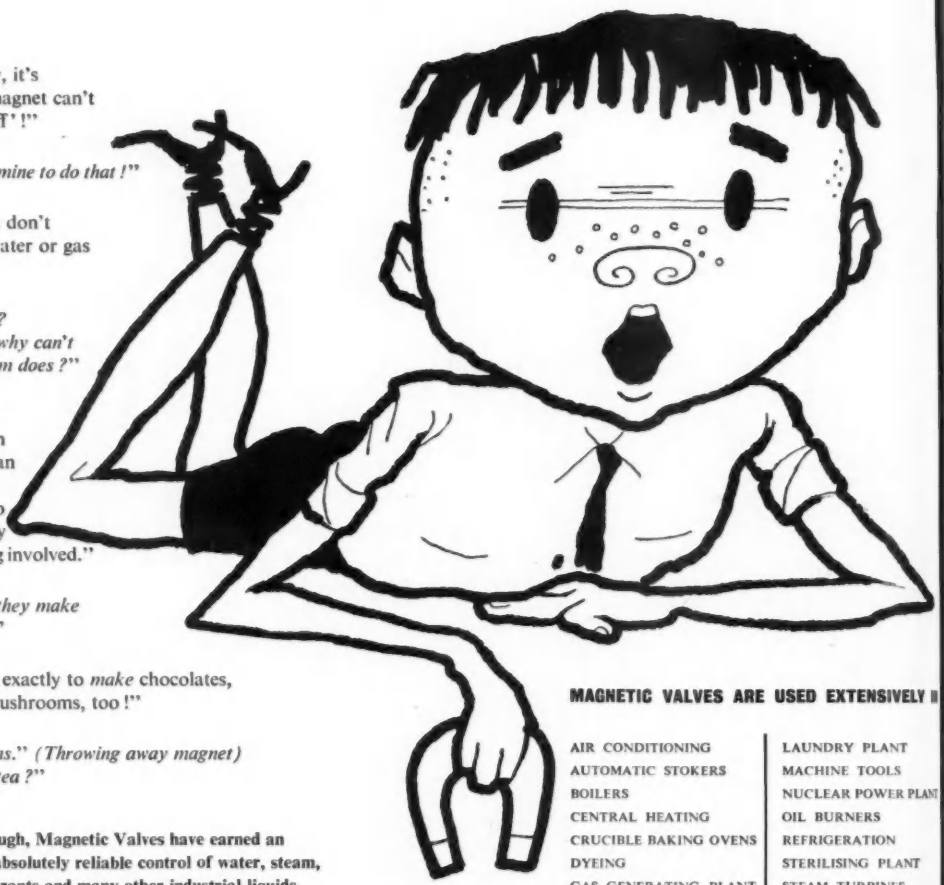
"Control water or gas? Seems stupid to me — why can't they use a tap like Mum does?"

"Ah! But using a tap means that you rely on what's called the 'human element'. That's why these valves are fitted to do things automatically —without people being involved."

"Mr. Stevens told me they make chocolates with them!"

"That's right, but not exactly to *make* chocolates, to *help* make them. Mushrooms, too!"

"Cor! I like mushrooms." (Throwing away magnet)
"Can I have some for tea?"



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AIR CONDITIONING	LAUNDRY PLANT
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CRUCIBLE BAKING OVENS	REFRIGERATION
DYEING	STERILISING PLANT
GAS GENERATING PLANT	STEAM TURBINES
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CYLINDER MECHANISMS	VACUUM PUMPS
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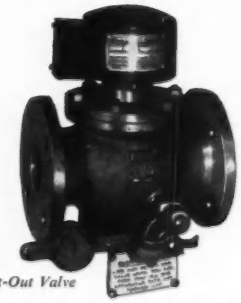

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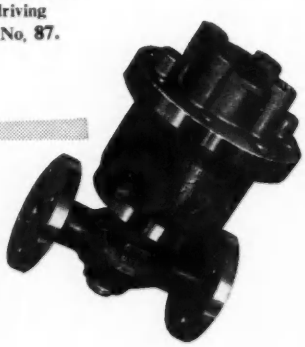

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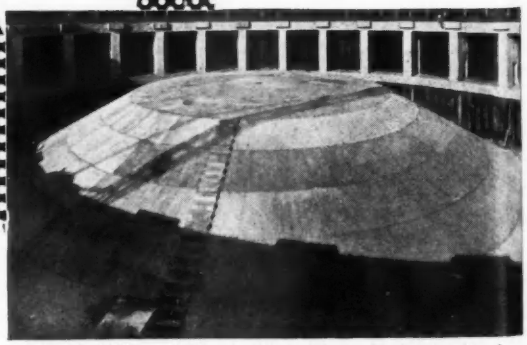

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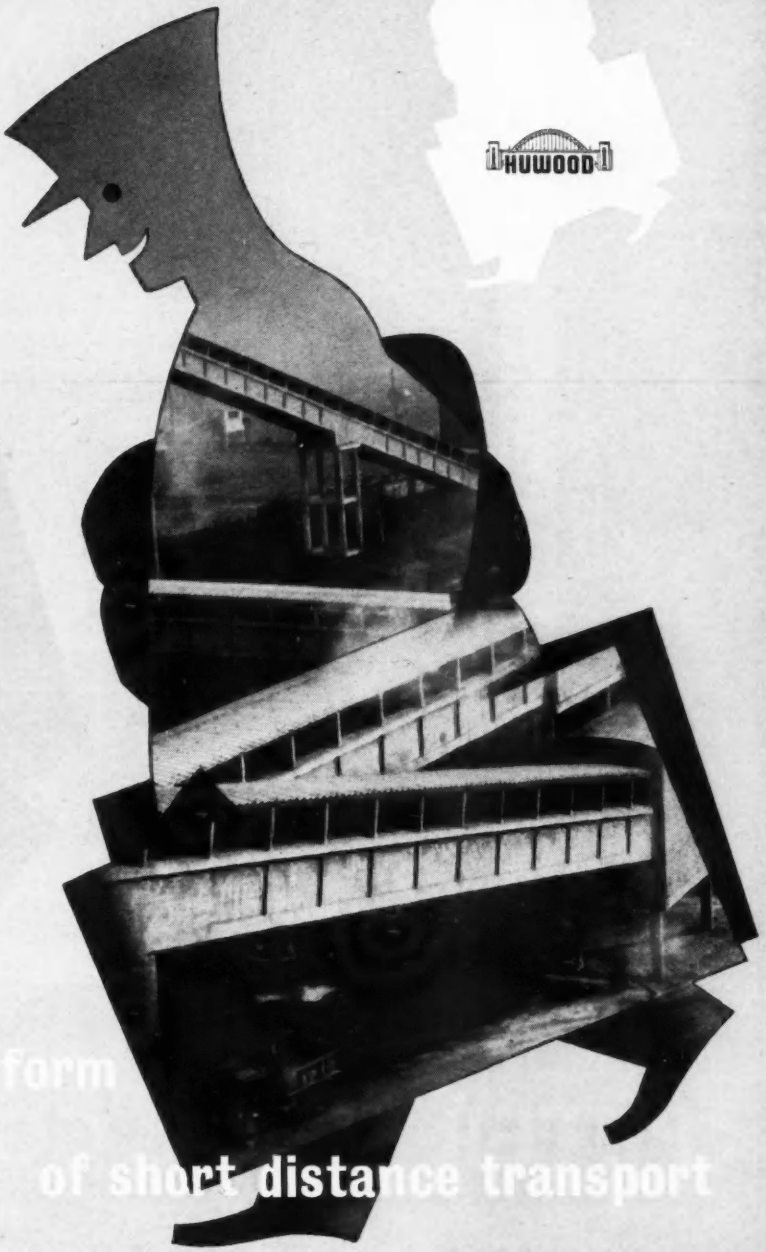

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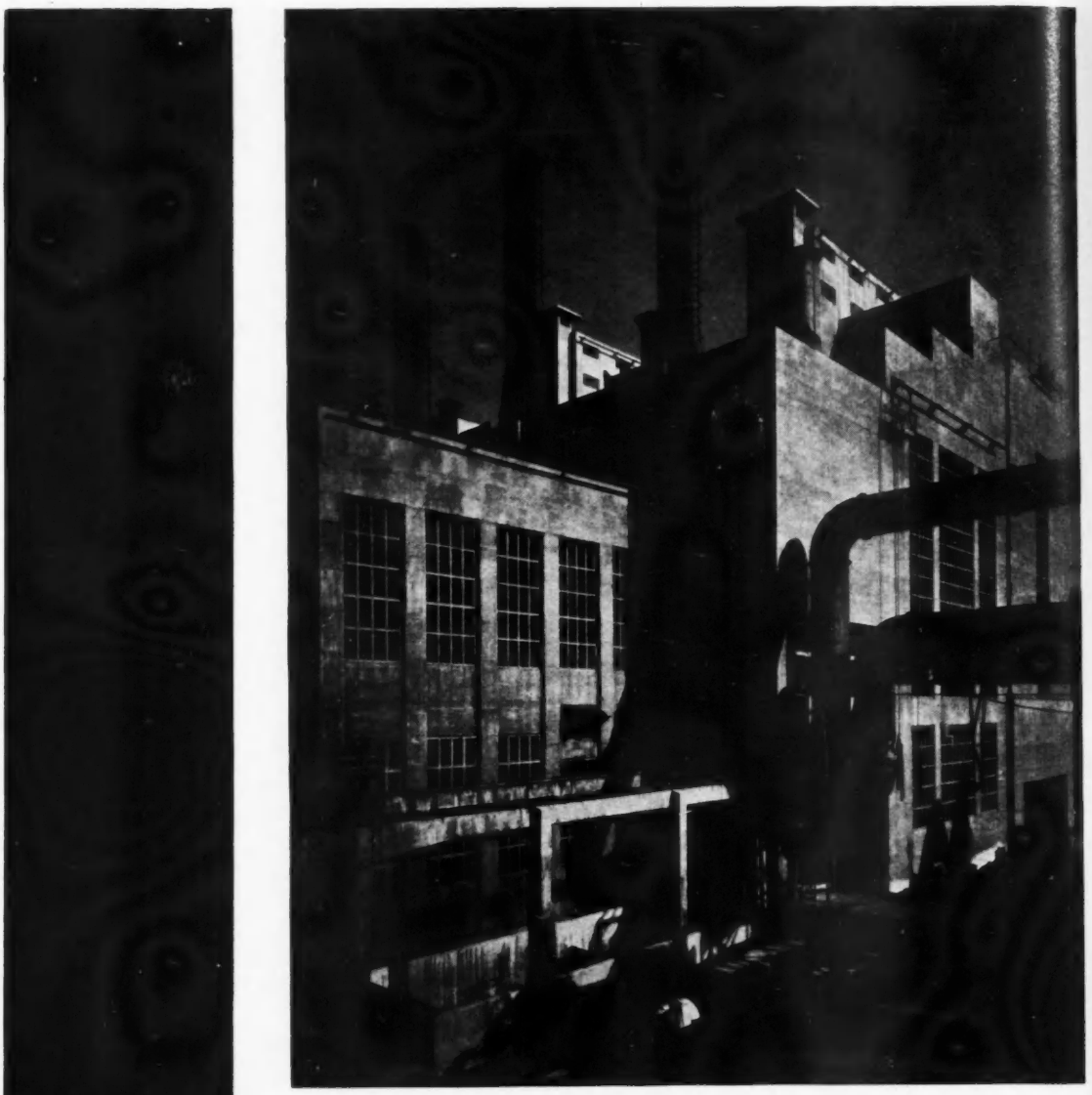

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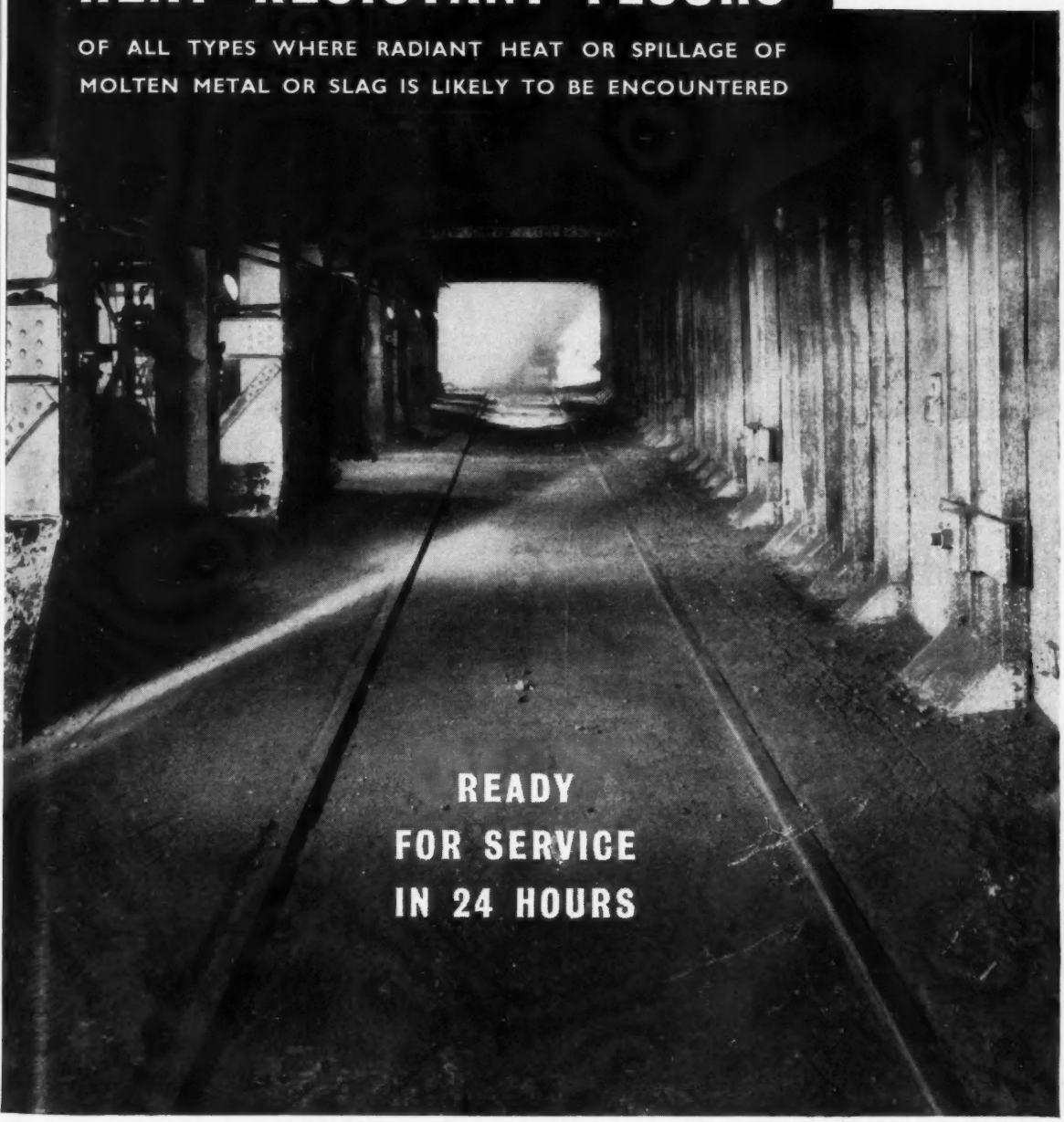

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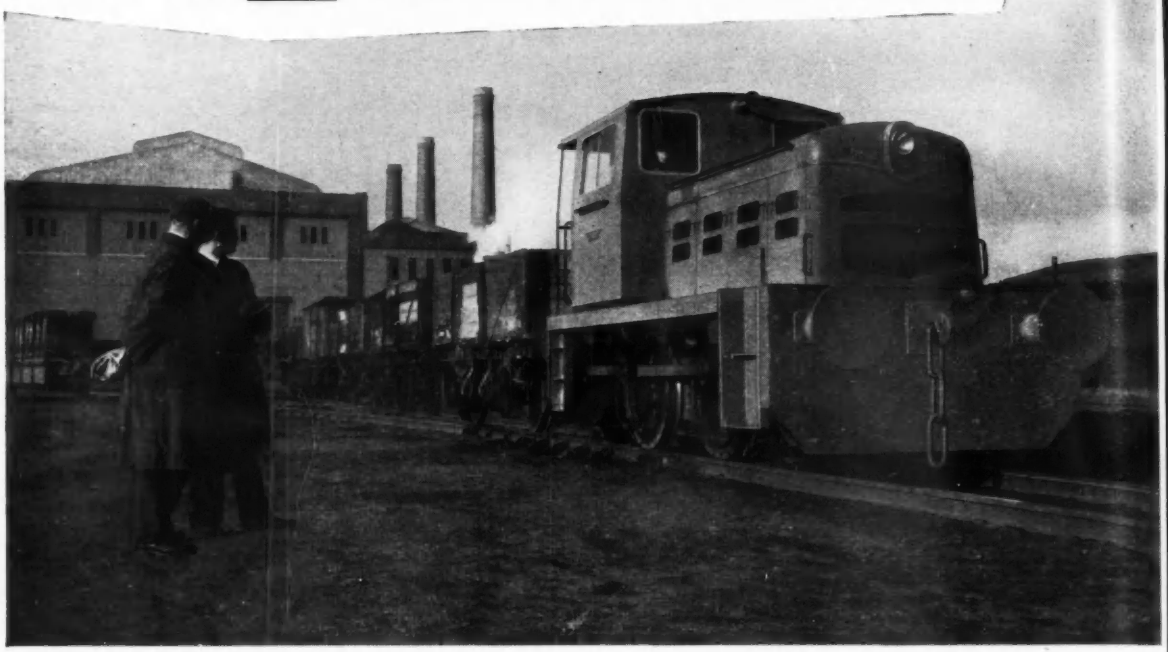
traffic managers....

..and the NEW FOWLER DIESEL LOCOMOTIVES



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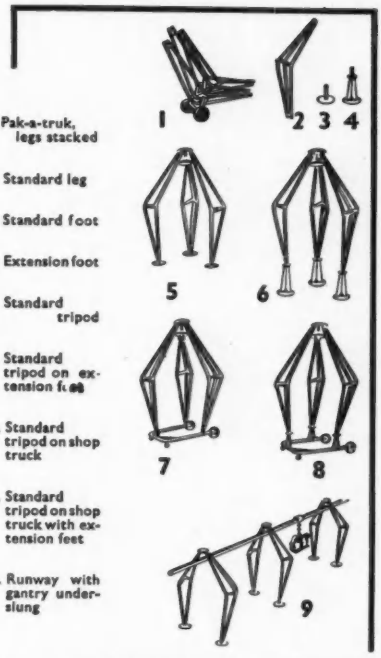

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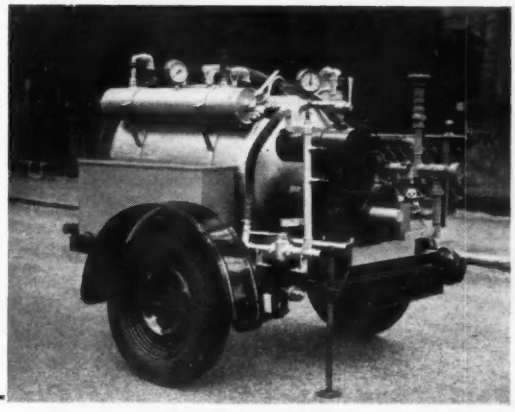
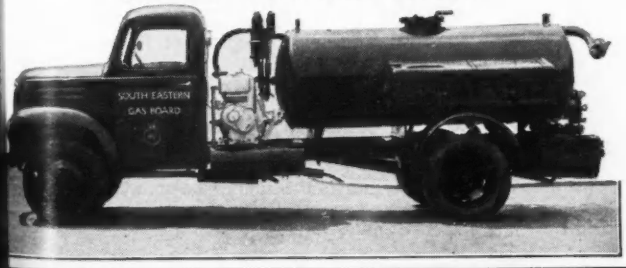
ALLAN TAYLOR SERVICE PIPE CLEANING OUTFIT

The 75-gallon vacuum and pressure trailer model Service Pipe Cleaning Outfit (right) is now fitted with the "PRESS-VAC" Assembly and cyclone and test-bar assembly. The "PRESS-VAC assembly enables the operator to apply vacuum or pressure alternatively to the service pipe. This operation "rocks" the obstruction and assists in clearing the stoppage. The "PRESS-VAC" tank is pressurised by the exhauster from the main tank. This permits gas to be used for this pressure operation, thus avoiding the hazard of air entering the main. The cyclone and test-bar assembly enables the operator to make pressure tests before and after cleaning the service pipe, the test taps passing 50 cu. ft. or 100 cu. ft. as required. By using the cyclone the dust drawn from the service pipe is deposited in the sight glass for inspection and then into the easily removable container below. This enables the operator to determine the extent of the cleaning and prevents the greater part of the dust from entering the main tank. The "PRESS-VAC" assembly can be fitted to all existing service cleaning outfits.



SYPHON EMPTYING OUTFIT



The Vacuum Syphon Emptying Outfit (*left*) is mounted on a 4 ton **Thames** Chassis. A 600 gallon galvanised tank is fitted. A rotary type exhauster is driven by a 4 b.h.p. four-stroke air cooled engine, mounted on a sub-frame behind the cab. The tank is fitted with a flame-proof vent and the outfit can be used for high or low pressure syphon emptying. A large manhole at the rear allows the tank to be cleaned easily. A sight glass is fitted to enable the operator to know when the Syphon is emptied. Twenty-five feet of 1½ in. suction hose is supplied with the outfit. The outfit can be used for vacuum or pressure working.

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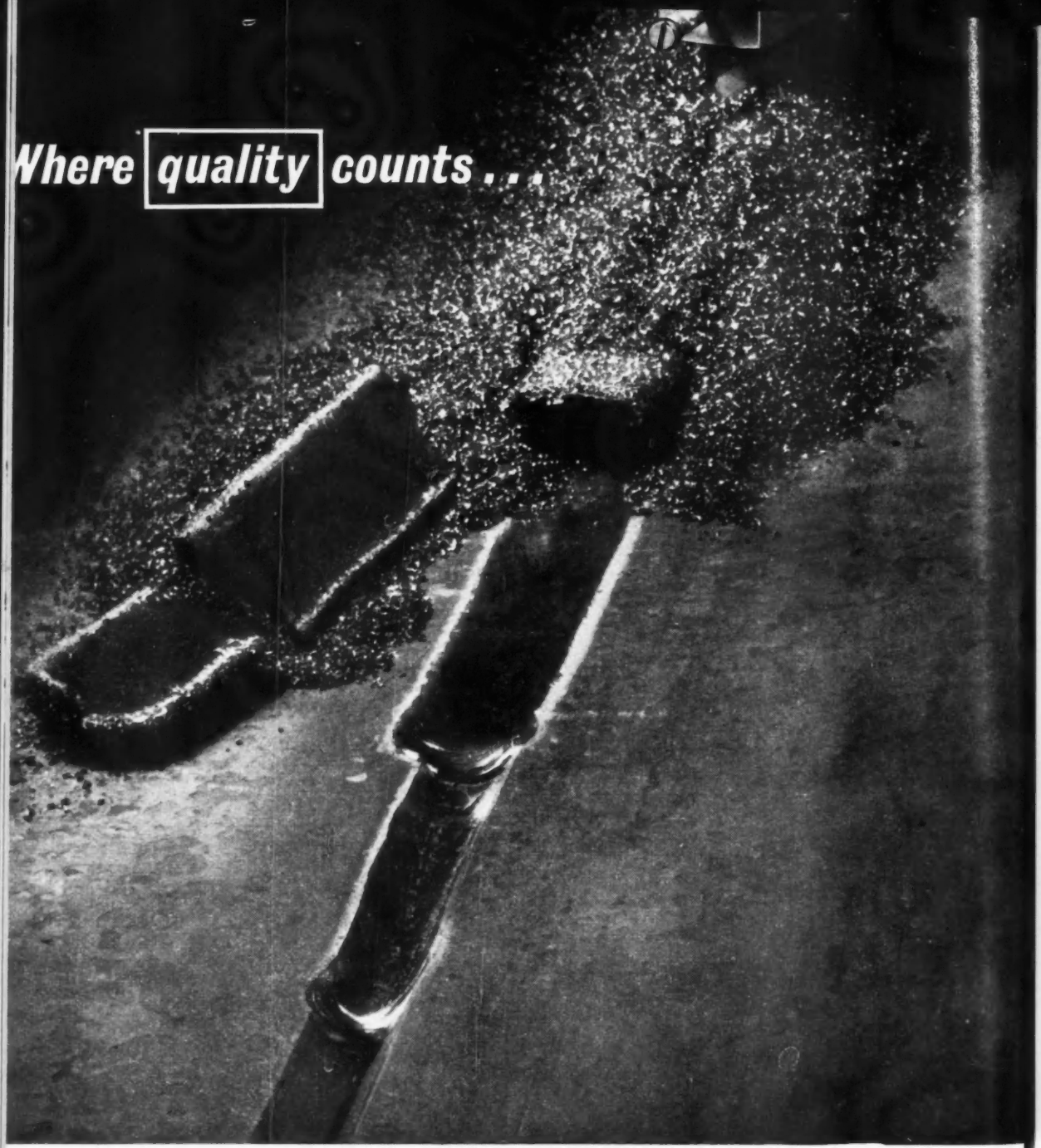

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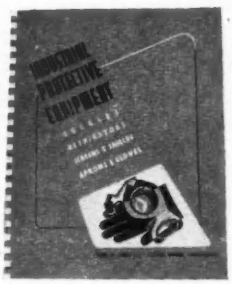

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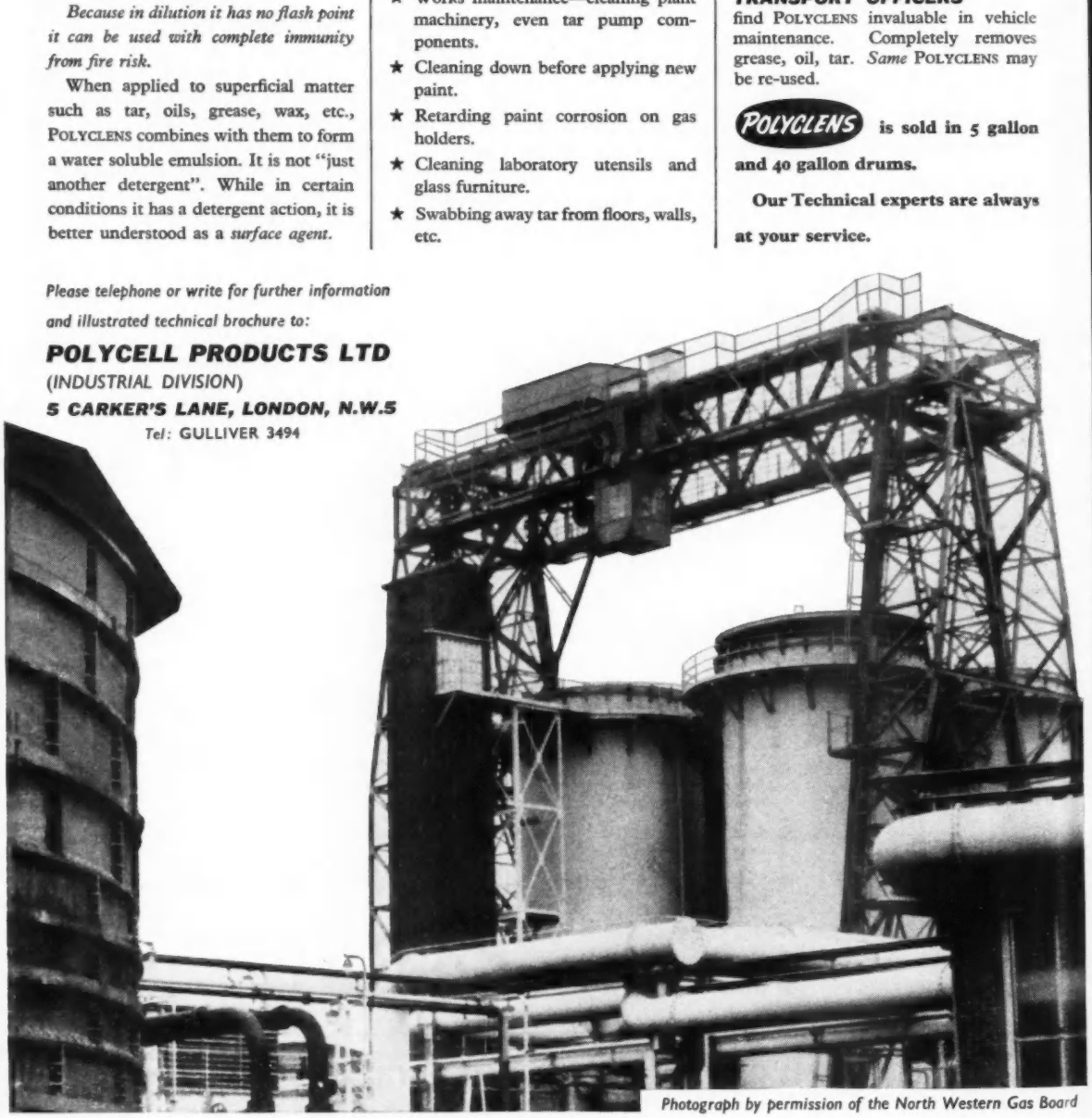

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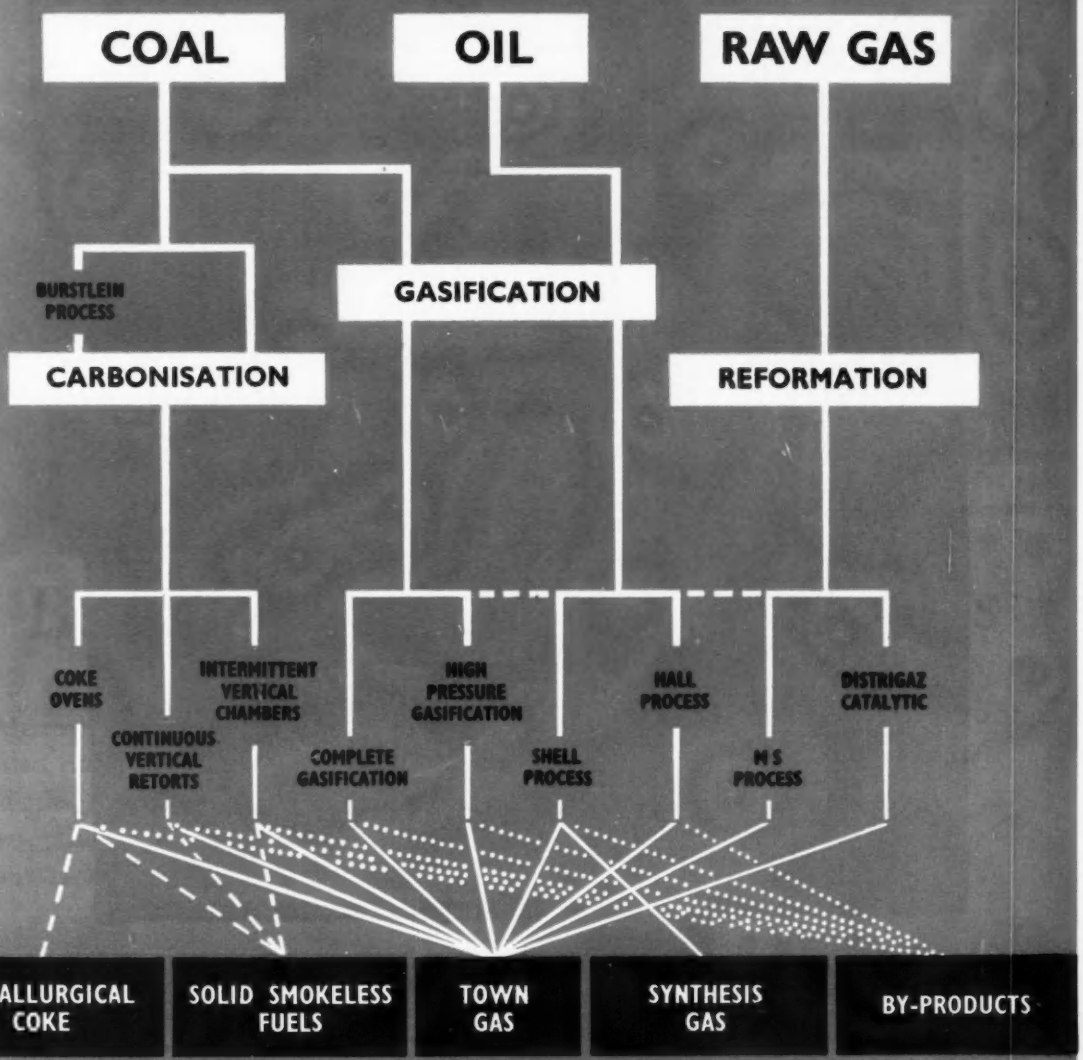

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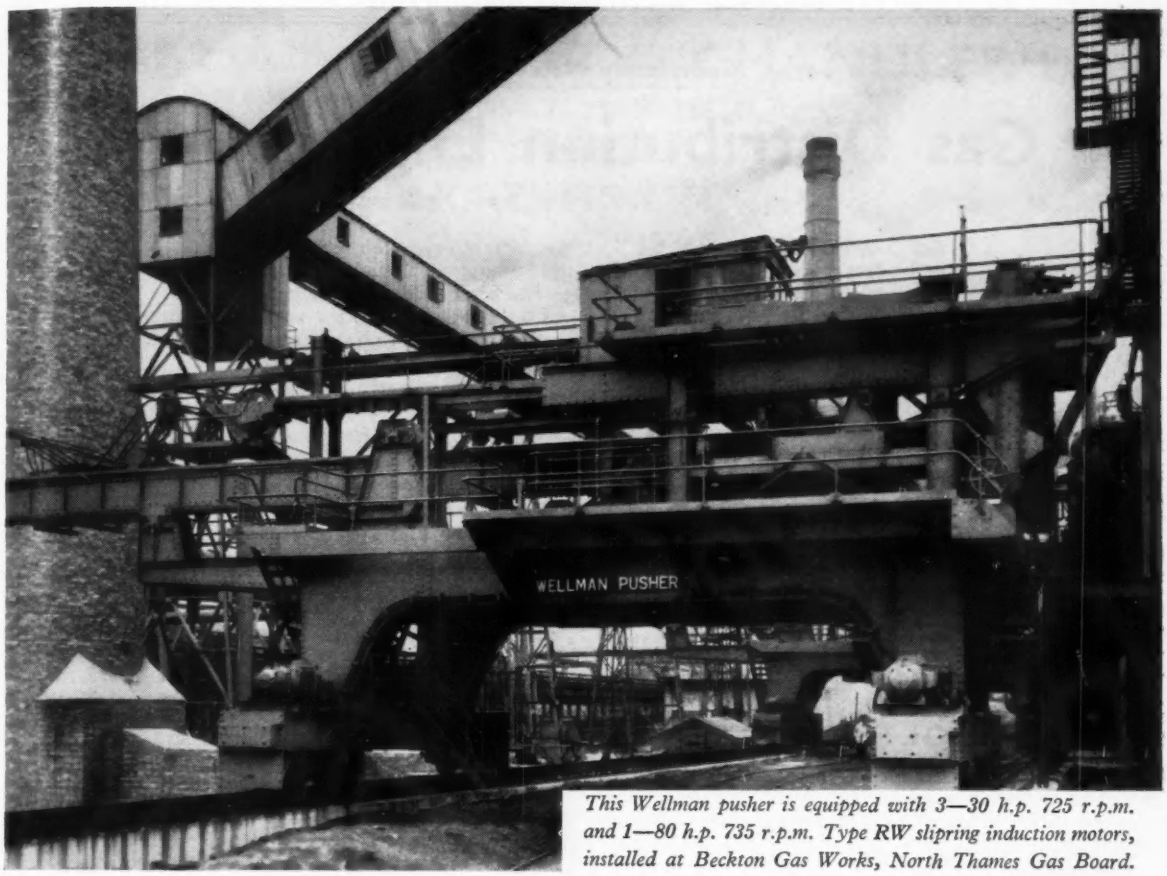

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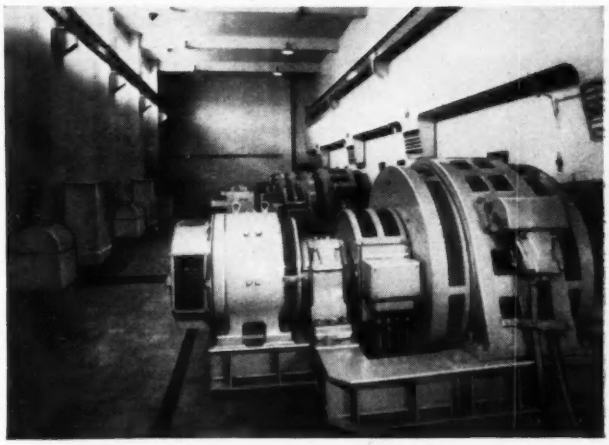

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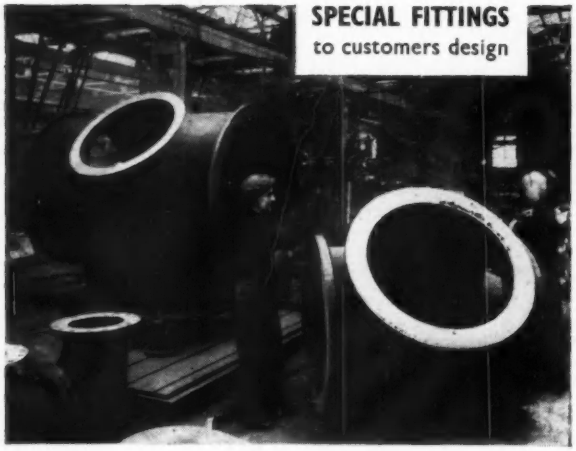

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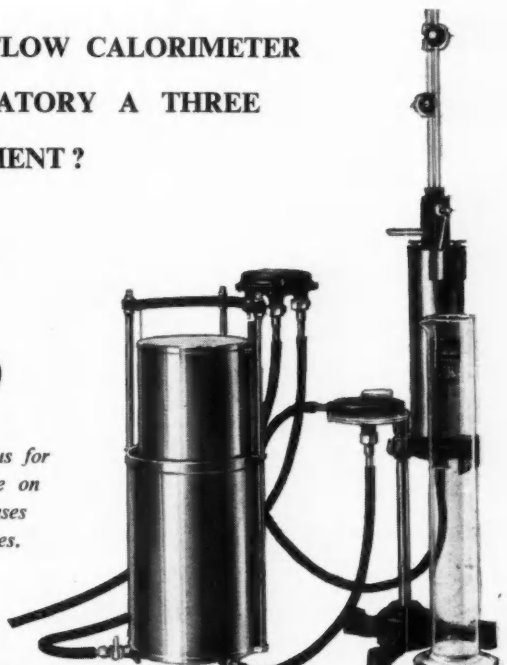

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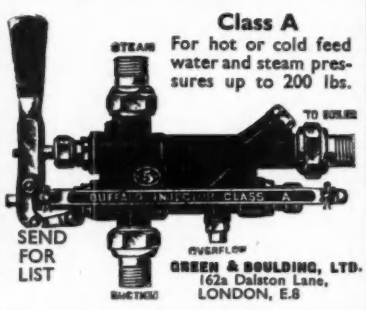

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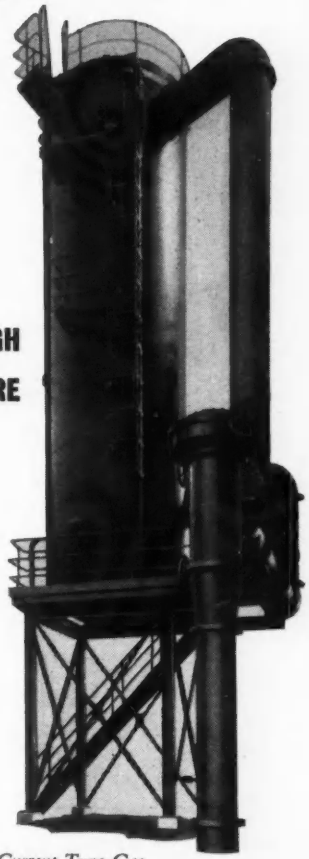

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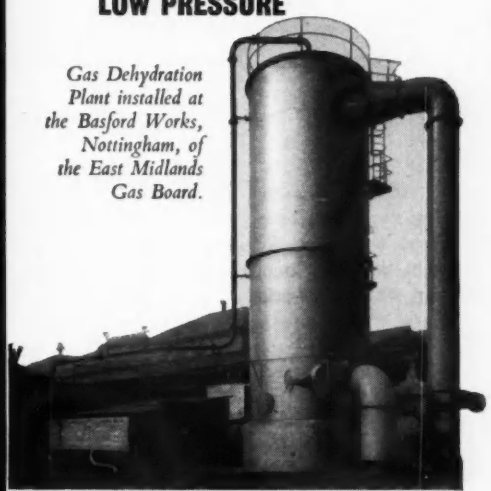

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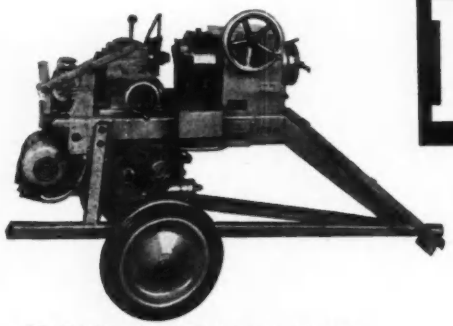

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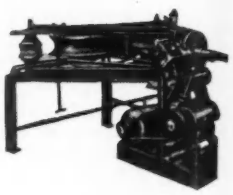

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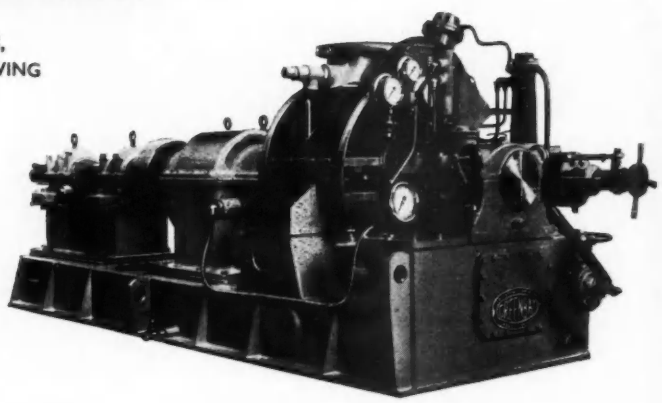

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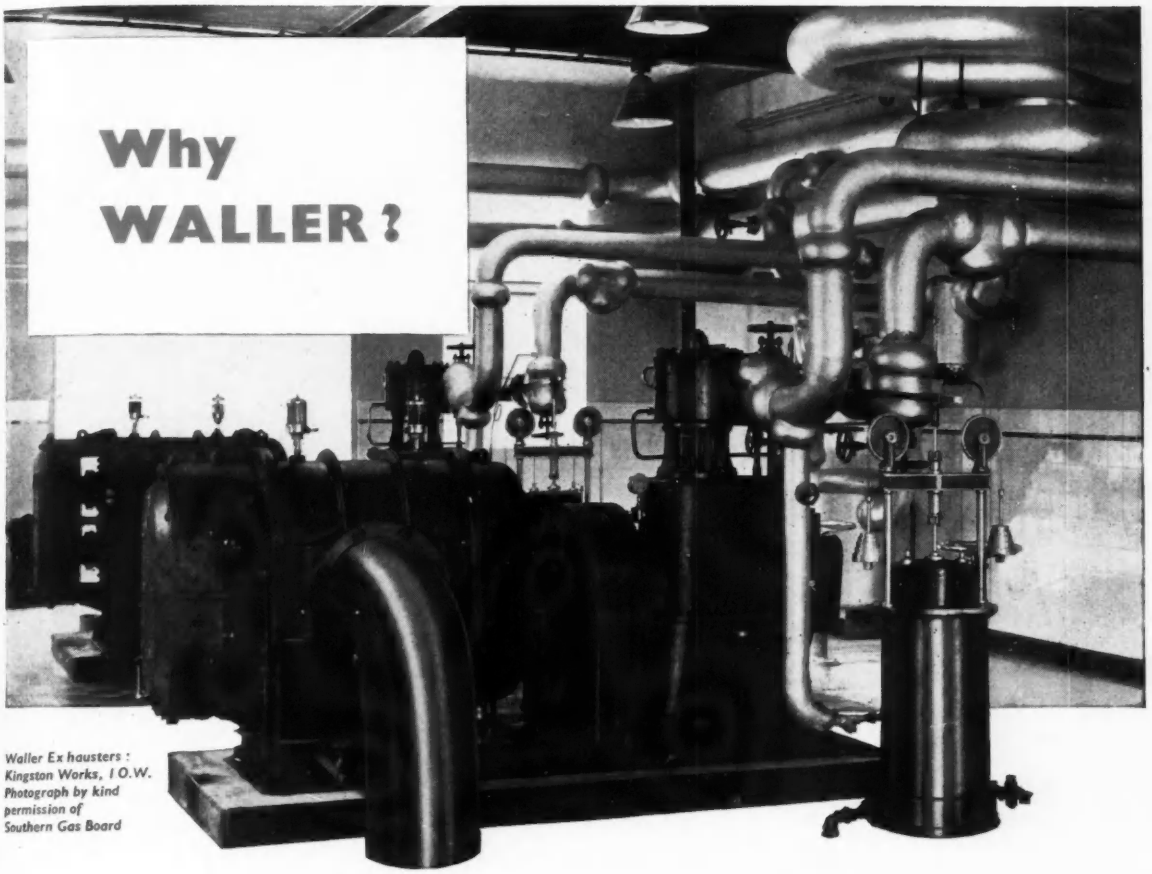

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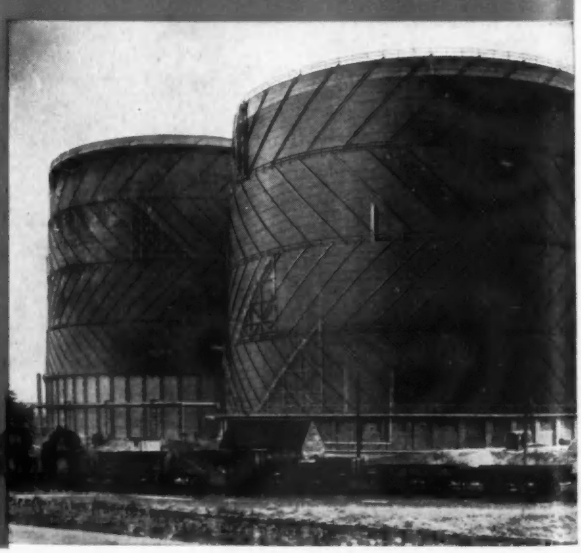
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